

Master's Dissertation/
Trabajo Fin de Máster

**OUTDOOR ACTIVITIES AND CLIL
APPROACH: A DIDACTIC
PROPOSAL THROUGH THE
ADVENTURE-EDUCATION MODEL**

Student: Serrano Bellido, Manuel

Supervisor: Dr. Víctor Pavón Vázquez
Department: English Philology

November, 2019

Abstract

The present Master's Dissertation aims to study the current state of Physical Activities in the Natural Environment in the Compulsory Secondary Education (CSE) curriculum and its relationship with educational competences in the current educational approach. On the other hand, we try to demonstrate the effectiveness of the Pedagogical model of Adventure Education through CLIL compared to a traditional methodological approach. For this, a practical proposal of hiking has been designed and implemented.

The need and interest of this subject lies in the actuality of the proposed approach, in the fact that it is a little worked area and in the methodology itself, being very innovative and attractive for its development.

In the first part of the work, we analyse the relationship between current educational competences and their relationship with Physical Activities in the Natural Environment and their situation in the Secondary Education curriculum. The Adventure Education model and the CLIL approach are shown and the basic concepts of hiking are studied in depth. This first part ends with a classification of the PANE and some organizational notions for hiring and relevant legal aspects.

The second part, consists of the quasi-experimental design, formed by 100 students, first and second CSE from the I.E.S Almicarán in Peal de Becerro (Jaén). We could conclude that based on the results obtained, the Adventure Education methodology through CLIL provides better scores than the traditional one, although it would be necessary to carry out more in-depth studies.

Keywords: Natural Environment, Pedagogical Model, Adventure Education, Physical Education, Curriculum, CLIL, AICLE, EMILE.

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1. INTRODUCTION

With the changes in the educational systems that we have experienced in recent years, we see how Physical Education (PE) is also undergoing an evolution, going from a series of activities where its main development took place in the gyms, facilities and sports courts of the schools, whose contents are more limited, to not be satisfied with those experiences and needing other more current ones, more in agreement with the needs of the students, with a search of stronger sensations. Moreover, this is not happening only in the area of PE, but increasingly there are more teachers seeking outings to the natural environment to teach their subjects, including these outputs in the annual programming.

Based on the Organic Law for the Improvement of Educational Quality 8/2013, December 9 (LOMCE), in the Physical Education syllabus we must take into account five motor situations in the Primary stage related to physical abilities to be consolidated in the best possible way when reaching the Secondary stage:

- Individual motor actions in stable environments.
- Motor actions in opposition situations.
- Motor actions in cooperation situations.
- Motor actions in situations of adaptation to the physical environment.
- Motor actions in artistic or expressive situations.

In this sense, through the Physical Activities in the Natural Environment (PANE) some examples can be gained, as valid as those developed in the educational centre but much more striking and innovative. That is why the teaching methodology in this medium is proving so successful (Caballero, 2015).

Concomitantly, many teachers, regardless of the educational level they belong to, seek to innovate in language teaching and for that purpose they try to keep abreast of the latest trends, to help their students in the best possible way. It is in this search for language teaching that the CLIL approach comes into play. As stated by Mehisto, Marsh and Frigols (2008):

“By the mid-1990s globalization was placing greater linguistic demand on mainstream education, from the primary level through institutions of higher education. In Europe today, there is a desire to improve language-learning opportunities for all young people in order to increase European cohesion and competitiveness” (p. 10).

Therefore, an integrative way of work is needed in order to achieve all these changes. Consequently, and based on the Order July 14, 2016, the integrative nature of the curriculum requires an effective cooperation of Physical Education with other subjects, highlighting for example its relationship with Biology, Geology, Geography and History, Music, Mathematics, Technology, etc. To improve this, the same order indicates that Physical Education contributes to the development of all key competences.

1.1. Approach of the problem, state of the matter and rationale

In reference to the Spanish Organic Laws, the reaffirmation of the school as an educational determinant is sought, since it has as its basic objective the full development of the personality of the students. In this reaffirmation, we seek an education open to the environment, trying to train competent citizens to assume their rights and duties. We cannot forget in this educational process to show the conceptual and instrumental knowledge necessary for these citizens to live together harmoniously in society, respecting the rules and knowing how to act accordingly, since it implies an increasing social demand (MEC, 1994; Baena and Granero, 2008). Physical Education in general and Activities in Nature in particular, are an excellent way to educate individuals to live in a healthy society, with the peculiarity that the whole process is carried out in an enjoyable way and without the pressures of the classroom.

In this sense, outdoor physical education focuses on the set of knowledge, skills, abilities, techniques and resources that allow to perform or practice playful sports activities in nature, safely and with the utmost respect for their conservation, enjoying, sharing and educating in it (Pinos, 1997).

If something is characterized in PE is the great variety of physical activities that can be performed, including activities in the natural environment. Caballero (2012a) believes that it is necessary to give an educational vision to the PANE, transferring nature to the classroom and the classroom to nature, to promote a greater knowledge of the own capacities and limitations of each individual.

Taking into account the precedent paragraph, the PANE have been classically separated from the curricular dimension, since the place where they are carried out and their particularities have a different treatment, as extracurricular and complementary activities. In addition, we are obliged to replace the complicated tasks of organization and bureaucracy, with the aim of promoting a complete and more balanced education, adapted to reality (Granero and Baena, 2007).

With the publication of the Organic Law of Education 2/2006 of May 3 (BOE May 4, 2006), it was improved in legislative matters with the implementation of Royal Decree 1513/2006, of December 7, by which establishes the corresponding minimum education in Primary Education and Royal Decree 1631/2006, of December 29, which establishes the minimum education corresponding to Compulsory Secondary Education. In the Physical Education Area of the Primary stage, this legislative change becomes noticeable and activities with a markedly healthy character are being encouraged, guiding individuals to personal well-being, covering individual and collective needs. This change in educational intentions implies an education without prejudice or discrimination in any field.

In order to respond to this determination, it would be necessary to include the PANE within the curriculum and whose contents are scarcely contemplated in this stage of Primary Education. There is only one clear isolated reference of the PANE, which we find in block 4, Physical Activity and Health. Once reached the Secondary stage, the LOMCE endorses the improvement and maintenance of health through physical exercise, as well as the prevention of diseases, disturbances and physical and mental imbalances. On this occasion there is a specific block 4 of Activities in the Natural Environment, which also helps in the discharge of stress and the production of fun activities. In short, to enjoy the body in motion and its motor possibilities. However, the Order July 14, 2016 makes a huge leap in quality and includes a specific block, number 5, covering the Physical Activities in the Natural Environment, including among the objectives to value the richness of the natural areas of Andalusia, in addition to a specific evaluation criterion for these activities for all levels within the Compulsory Secondary Education (appendix 1).

. The PANE are an important tool as generators of physical exercise to achieve these benefits, even more necessary when the sedentary lifestyle of our society is more common, which is why we can speak here of the first order prevention exercised by Physical Education (Baena and Granero, 2008).

There is no doubt about the increase in professionals seeking education through the PANE, as shown by a large number of studies showing their positive effects (Granero and Baena, 2007, García, 2009, Parra, Rovira, Ortiz, and Pérez, 2000; and Santos and Martínez, 2008). According to these authors, socialization is favoured, healthy habits are created, the ability to adapt to other unknown environments is improved, autonomy and self-improvement are developed, etc. (Baena, Serrano and Fuentesal, 2013).

Taking into account the works analysed above, the characteristics of Physical Education, especially those related to the environment in which it is developed and the dynamics of the classes, make it conducive to the education of social skills, when the educational intervention affects this appearance. Physical activities, especially those carried out collectively, are an effective means of facilitating relationships, integration and respect, while at the same time contributing to the development of cooperation and solidarity (LOMCE). On the other hand, they become a tool to understand the environment and will allow students to better understand their characteristics, impacting directly and positively on the possibilities for their enjoyment, in a sustainable manner (Baena and Granero, 2014).

For all these reasons, the importance of the topic lies in the fact that the previous studies carried out in relation to the degree of development of the PANE indicate that they are a small and badly worked block in schools (Sáez-Padilla, Rodríguez-López and Giménez-Fuentes, 2011). There are many difficulties encountered for its correct application in Educational Centres (Granero, Baena and Martínez, 2010). Among them we can establish some more characteristics (García, Martínez, Parra, Quintana and Rovira, 2005):

- Administrative: lack of updates, recycling, advice, civil liability...
- Teachers: lack of enthusiasm, disappointment, lack of innovation and collaboration, little recognition...
- Organization of PANE: meteorology, displacement and transport, availability of time...
- Characteristics of the activities: materials, specialists, price, tastes, technical requirements...
- Other: educational policy of the centre, parents, age of the students...

Faced with these difficulties, the PANE seek the authentic, the natural, try in a certain way to recreate the life and history of our ancestors. In this way, the aim is to combine the wealth exhibited by these educational tasks, through skills in the midst of nature and the need to discover new experiences, so necessary when students do not conform to the traditional (Arroyo, 2010).

Its educational role is endless, with an enormous potential, propitiated by finding new situations in unusual conditions. But above all, its great motivating character stands out. We could speak of three spaces in which we can divide education:

- Cognitive: geography, history, cultural aspects, topography and cartography, map reading, flora, fauna, meteorology... that is, any knowledge that helps to understand the natural environment.
- Affective: cooperation and collaboration are essential in this medium, since the vast majority of these activities are carried out in groups, or at least in company.
- Motor: a great capacity of the natural environment is that it allows an inexhaustible number of opportunities for movement that cannot be realized in the current school context.

1.2. Justification for the choice of the topic

The justification is based on the need to contribute to the integral formation of people through the PANE, coordinated collaboratively with teachers from other areas and the language assistant, since they are capable of promoting an interest that in a more traditional way would not develop in the students.

Since the entry into force of the Law of General Regulation of the Educational System of 1990 (LOGSE), importance began to be given to the figure of teachers. It indicates the need for basic training and ongoing training (Vázquez, 2001), making the most of educational resources and enabling research as a tool for the comprehensive training of students (Peñarrubia, Guillén and Lapetra, 2013). The sustainability of bilingual education goes through the teacher training for content and language integrated learning (CLIL), analysing where educators stand and where they need to go in order to guarantee a success implementation of CLIL (Pérez Cañado, 2018).

In a similar vein, this training and specialization are more evident nowadays, with the creation of new professions, teachings, adaptation and unification to European regulations. It is clear that in order to offer a quality education, teachers must become specialists and researchers in the subject they intend to teach. In the area of the PANE no one can doubt of the knowledge required, noting that with the appropriate adaptation of the activity, safety and materials, they are feasible for all teachers.

For all the above, the justification for this Master's Dissertation is based on the development of a proposal embedded in a particular subject (Physical Education) with connection to specific parts of its syllabus (integrated curriculum) and it is not a mere proposal of an activity in English.

1.3. Hypothesis

It is expected that the intervention based on the pedagogical approach of Adventure Education and CLIL will cause a positive increase in the means of the scores of the students of the experimental group.

1.4. Objectives

1.4.1. General objectives

- To analyse the state of the issue of current trends in the teaching of the Physical Activities in the Natural Environment.
- To develop an intervention through the Adventure Education model and CLIL approach.

1.4.2. Specific objectives

- To raise awareness among Physical Education specialists of the enormous possibilities of the PANE to promote the CLIL approach.
- To value the PANE as a tool and means to achieve or improve positive and motivating attitudes of physical activity development in the activities of daily life.
- To foster the camaraderie and cooperation among the participants.
- To compare the differences of scores in the pre and post-test after the intervention.

1.5. Educational relevance

With the implementation of the LOMCE, the core competencies of the curriculum were renamed key competences, with the aim of adjusting to the European frame of reference (European Parliament and Council, 2006). For this same reason, the number of competencies becomes seven and some are renamed. Therefore, the new education system is based on the following key competences:

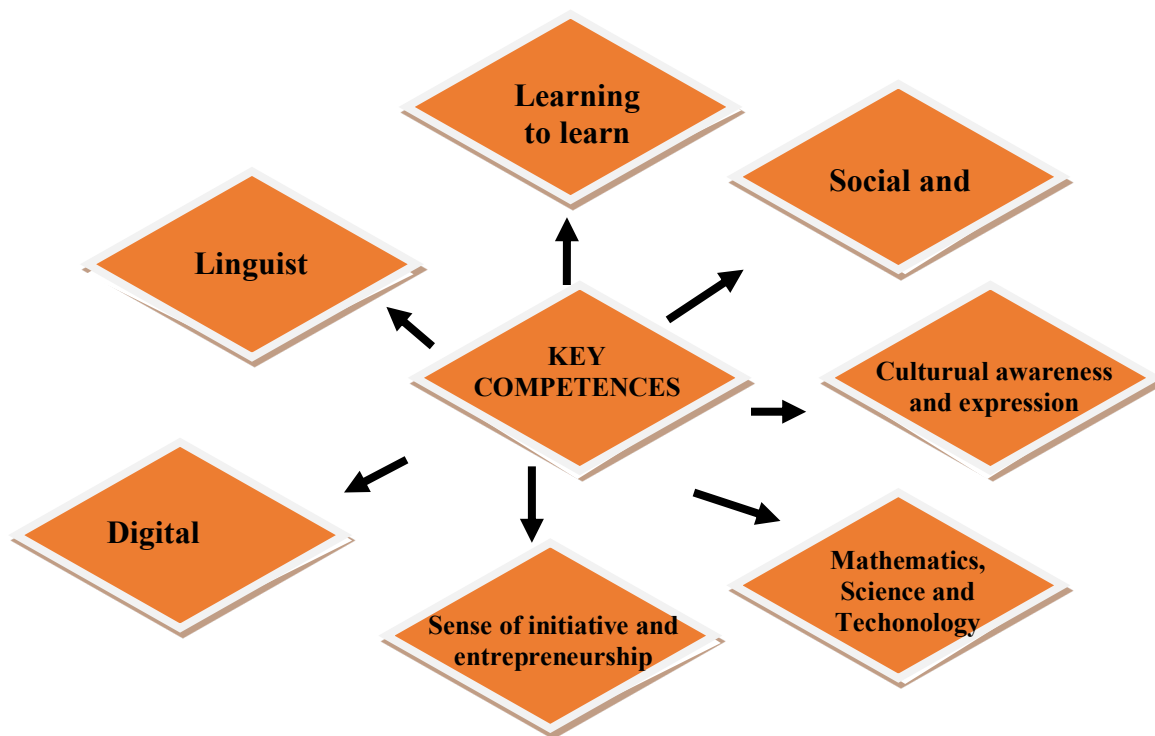


Figure 1. Key competences in LOMCE.

In the current educational context, in addition to the objectives and contents, key competences are developed, which is why they are one more reason for concern, prevention and responsibility of all teachers. Physical Education is also a part of this educational process, contributing to its success. Moreover, it treasures an extraordinary richness and ease in achieving these skills, by accepting the rules of the game, respect for others, achieve healthy lifestyle habits, understand and participate in activities of different cultures, know yourself to analyse their own limits and objectives so that they are realistic, choosing the path or the decision of their own and accepting the consequences, searching and using new technologies, taking advantage of the body as a means of communication, corporal expression, adaptation of the body to the outside, demonstrating mastery of the new situation, etc. As we can see, the possibilities are endless, which is why the PANE are an excellent means to contribute to the acquisition of key competences (Figueras, Capllonch, Blázquez and Monzonís, 2016). Having said the above, we will see below the relationship of the key competences with the subject dealt with.

2. THEORETICAL FRAMEWORK

The promotion of health has been acquiring special relevance in today's society due to the advances of the scientific community and the development of medical technology. The World

Health Organization (WHO) announced in 1946, after the Second World War, the concept of health as a complete state of physical, mental and social well-being and not only the absence of diseases or illnesses (WHO, 1946).

As argued by Martínez, Contreras, Aznar and Lera (2012) the current situation of sedentary lifestyle among the adult population is moving to the earliest ages, such as adolescent age and childhood age.

Similarly, based on Trigo, Navarro and Rodríguez (2016) and bearing in mind the concept of health, there are three clearly differentiating aspects of activities in the natural environment that make them unique:

- Motivation: the motivating role of these activities makes them generator of healthy habits and encourages the abandonment of sedentary lifestyle.
- Basic psychological needs: all individuals have three basic psychological needs, namely competence, autonomy and social relationships. Through the PANE the three are covered.
- Enjoy: they are activities that produce pleasure in themselves and therefore greater adherence to sports and healthy practice.

2.1. Background

Firstly, we can recognize the Law 10/1990, of Sport, as the precursor of the situation of Physical Education in the Spanish educational system, because in its general principles it is recognized its great scope, value and effectiveness in the integral formation of the students, emphasizing in addition its social capacity (Peñarrubia, Guillén and Lapetra, 2013).

The PANE begin to incorporate into the Physical Education curriculum with the implementation of the LOGSE, presenting from that moment a block of its own content in the stage of Compulsory Secondary.

This evolution continues today, with an education in the formal environment in the Educational Centres and in the informal environment through Federations, Leisure Centres and companies, with a great proliferation and support of the Administrations, counting on an extensive heterogeneity of sports qualifications in the Natural Environment (Table 1).

Table 1. *Educational legislation evolution related to PANE.*

	Year	Value	Contents
Law of General Regulation of the Educational System (LOGSE)	1990	Teachers' training	Cross-cutting issues
Organic Law of Participation, Evaluation and Government of the Centres (LOPEGC)	1995	Extension of measures to diversity	As previous one, do not affect the PANE
Organic Law on the Quality of Education (LOCE)	2002	Specific general objective for PANE	Expansion of evaluation criteria for PANE
Organic Law of Education (LOE)	2006	Change of objectives to competences	Specific reference to the PANE
Organic Law for the Improvement of Educational Quality (LOMCE)	2013	Unification and change of competences nomenclature	Greater autonomy to centres for PANE development

2.2. Theoretical considerations

The pedagogical models are an acquisition that the teachers are perfecting in their working methods, increasing their number every day, regardless of the stage in which they impart education and the educational context (Fernández-Río, Calderón, Hortigüela, Pérez-Pueyo, and Aznar, 2016).

As Casey (2014) argues, model-based teaching aims to teach taking into account the needs and interests of the students and the teaching style, avoiding the interests of the teacher or the contents. Seen in this way, teaching styles are not a separate concept from the educational model, but rather consist of a piece of their structure and whose future is based on the student over time (Fernández-Río et al., 2016).

The pedagogical models can be divided into basic and emerging, although it is very normal to find them in a hybrid form (Fernández-Río et al., 2016).

1. Basic models (Fernández-Río et al., 2016)

- Cooperative learning.
- Sport Education.
- Comprehensive Sports Initiation.
- Personal and Social Responsibility.

2. Emerging models (Fernández-Río et al., 2016)

- Adventure Education.
- Physical Literacy.
- Attitudinal style.
- Ludotechnic model.
- Self-construction of materials.
- Education for health.

2.2.1. CLIL Approach

In overall terms, CLIL is an approach in which teaching contents and language are teaching at the same time, in an integrated way. Indeed, the language is used to reach the objective of learning content and vice versa. The language is learned in real situations, so it is an active application of the language to prepare the learners to face everyday situations assuming a cognitive challenge for the students.

Therefore, this approach is based on a methodology that benefits this dual learning, where the difference with other linguistic immersion approaches lies in the fact that in CLIL the mother tongue (L1) can be used at certain times, alternating with the one learned (L2) (Lin, 2008). The teaching of CLIL is focused on the students, being interactive and autonomous and it is really important that the student acquires fluency in the language.

In this regard, there are a number of variables to consider: duration of the programme, use of L2, subjects taught in L2 and opportunities to interact with L2.

2.2.1.1. What is CLIL?

It is the acronym for “Content and Language Integrated Learning” in English -EMILE in French and AICLE in Spanish-. It means teaching contents through a second language, either a subject or some part of a subject (Marsh, 1994). The term was introduced for the first time in Europe in 1994 because due to globalization, the need to learn a foreign language especially for young people, increased significantly. As states Graddol (2006), “CLIL is an approach to bilingual education in which both curriculum content and English are taught together” (p. 86).

One aspect that assumes great importance in the CLIL approach is the language teacher, since (s)he has a double role, because (s)he needs to coordinate with the content teachers to advise and support them in the teaching of their subjects, apart from teaching her/his own subject.

In line with this idea, when we are in the process of teaching or learning a new language, we need to bear in mind that our intention is to improve communicative competence and for that we have to rely on linguistic skills to develop the interdependence that exists between effective communication and language (Richards & Rogers, 2001).

In this sense, the learning developed in this way is highly motivating, from the point of view of learning real-life concepts in a language different from the mother tongue and not studying a language in an isolated and abstract way. Therefore, a problem is to become a competent CLIL teacher, so it is necessary to promote a quality preparation to have a qualified teaching staff (Mehisto, Marsh and Frigols, 2008).

Concomitantly, the proposal of this design is not to treat the learning of a language as something independent, abstract, that only takes place during certain weekly hours, but to introduce it in all the subjects as a vehicle of communication to explain the concepts. Therefore, the CLIL approach is based on four concepts known as the 4Cs of the curriculum (Coyle, 2006; Coyle, Hood & Marsh, 2010). According to him, a CLIL lesson should include (Figure 2):

- Communication: to combine the learning of the language with its use to learn the contents.
- Culture: multilingualism is currently not understood without interculturality.
- Content: they are the centre of the learning process. They must be present always but they should not be the only objective.
- Cognition: learning involves thinking deeply, reflecting and solving problems. The cognitive challenge is what generates learning.

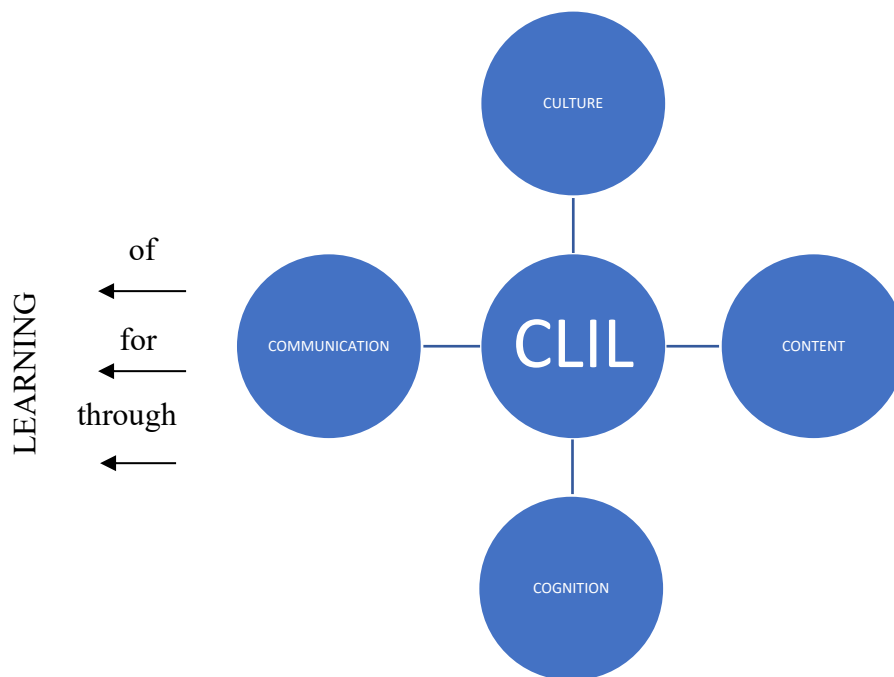


Figure 2. 4 Cs framework for CLIL and Language Triptych (Coyle, Hood and Marsh, 2010)

2.2.1.2. CLIL in Physical Education

In CLIL, one of the central concerns has been which areas or subjects are most suitable to be taught in a foreign language (Wolf and Marsh, 2007). Physical Education is one of the subjects to be taught in another language, so publications about practical educational proposals and standardizing action protocols in this area are more and more frequent.

Hernando (2016), points out four fundamental reasons to justify the choice of Physical Education in a bilingual program: intrinsic motivation; realism, functionality and significance; relaxed environment conducive to communicative interaction; oriented towards action and experimentation.

On the other hand, in other subjects, the L2 focuses mainly on written communication while in the case of Physical Education the oral communication of the foreign language stands out and therefore lends itself to a more educational approach. (Fernández-Barrionuevo, 2009). Physical Education is an excellent way to develop motor skills, improve foreign language, cognitive skills and promote the personal and social development of students (Coral and Lleixá, 2013).

As we have seen so far, we notice that through Physical Education we are able to develop all competencies, as pointed out by Contreras and Cuevas (2011). The fact that this subject is

eminently practical, encourages it to be one of the areas in which it is easier to contextualize the contents, since demonstrations can be carried out. (Ramos, 2010).

Indeed, Bloom (1994) states that the educational objectives could be divided into three levels, namely: cognitive, psychomotor and affective. Obviously, Physical Education is an excellent way to favour the 3 named domains.

In Physical education classroom, the feedback and de interactions among students is continuous. Subsequently, the context and environment are delectable, preventing or avoiding all discrimination conditions and promoting the learning and teaching process. In general terms, teaching through tasks is the most used methodology in Physical Education and cooperative tasks have constructive consequences on language acquisition and motor development (Coral, 2011).

It is paramount to highlight that the student-centered methodology is the predominant one, since the tasks, exercises and assignments will always be adapted to the students, so we also have to emphasize the role of attention to diversity as a facilitator of the communication process, group cohesion and the educational process. In short, it is an essential step for social integration, from the point of view of promoting relationships (Moreno, 2018).

Although there are many similarities between the teaching methodology of the subjects, we find differences between the methodology of Physical Education and the rest of the areas (Table 2) (Molero, 2009):

Table 2. *Methodological peculiarities of the Teaching of Physical Education with respect to other areas.*
(Adapted from Molero, 2009)

TEACHING OF PHYSICAL EDUCATION	TEACHING OF THE REST OF AREAS
The character of the activity is playful and experiential, with a global involvement of physical and psycho-social type.	Mostly only cognitive ability is used.
The progression in activities and motor results is a manifest fact before the whole class, making it difficult for a student simulate their participation in the activity.	For a long time there are no demands to manifest what is being achieved, being possible for the student to simulate their attention in class while their mind may be elsewhere.
The positive or negative results are immediate, functioning as a relevant adjustment mechanism during the development of the T-L process.	The positive or negative results take time to occur, having less influence on the process.
Due to the constant requirement of physical activity to achieve certain objectives, the teacher has to provide numerous and different types of feedback, which increase by constant changes in organization.	For the development of classroom activities, the teacher needs to give far fewer guidelines and instructions to the students.
The possibilities of individual interaction faced by the teacher to break the barrier of physical contact between students and students / teachers are numerous.	The physic teacher-student contact barrier does not break while maintaining conventional distance situations.

2.2.1.3. Applying CLIL in outdoor activities

Taking advantage of the ludic-recreational aspect of outdoor activities, it is necessary to consider and promote group tasks with the aim of making communication relevant (Salvador and Chiva, 2015). In this respect, since it is based on the CLIL methodology, the progression in the language demanded of the students must facilitate the necessary scaffolding that makes easy their learning (Bruner, 1978). In the same way, the progression in the type of cognitive

demands must be taken into account, which must go from the simplest to those of a higher order (Coyle, Hood and Marsh, 2010).

In a similar vein, we are aware of the diversity of the people, each person is unique. Therefore, through outdoor activities, the students can mature in the easiest way for them. We refer to the teacher adapting and favouring situations in which students can excel in certain skills. In this way, we will take into account the multiple intelligences that people have (Gardner, 1983). Thus, students with different abilities and intelligences will be able to work in an environment of collaboration and camaraderie, learning from each other. This is evident in these activities, since there will be students with more facility to orientate in the natural environment, others with better physical skills, others will mediate in the group, etc.

In line with these ideas, we will test a teaching methodology based on activities in the natural environment, very innovative and striking.

2.2.2. Adventure Education Model

This model appears at the beginning of the 20th century, through John Dewey and Kurt Hann. It is included in the so-called emerging models, since it meets the necessary requirements to be able to be framed within the teaching models. These requirements are (Metzler, 2000): to enjoy a consolidated theoretical base, to have research about their treatment and development and to have demonstrated their suitability in different educational contexts, fulfilling the objectives for which they have been carried out.

It could be defined as one in which students participate in adventure activities to develop knowledge, skills, abilities and attitudes (appendix 2). Through this methodology (appendix 3), a large number of skills, both physical, cognitive and affective, are developed and required (Dort, Evaul and Gehris, 2005).

In the same way, activities carried out in urban environments developed for these purposes can also be considered within the activities of Adventure Education. Apart from the objectives previously seen, these activities also seek the process and the formation of integral people, socially humanized and prepared to carry out a full social life. Parra, Caballero and Domínguez (2009) affirm that the PANE intervene in the contribution to the social and personal development of individuals, in and through them.

In relation to the comments in the introduction, referring to block 4 of the Secondary Education stages, this methodology is being developed by a group of authors in recent years due to the

lack of PANE content with educational objectives, both in formal and informal education (Fernández-Río et al., 2016). Being able to implement these activities in all areas (school, university, extracurricular activities, camps, activities with companies, etc.) is a way of learning in which the personal and social values prevail over other more academic aspects, removing pressure from students for their progress and improvement.

This system enjoys great experience and Anglo-Saxon practice, finding researches with different activities such as climbing (Fernández-Río, 2000); orienteering (Slentz and Chase, 2003); ropes (Clocksin, 2006); canoeing (Latess and Walker, 2011) or parkour (Suárez and Fernández-Río, 2012), taking for Fernández-Río et al. (2016) a series of elementary elements:

- Problem solving: having to face a dilemma to solve it.
- Overcoming barriers: it helps to overcome fears, to reduce mistrust in oneself, both in the personal and mental as in the physical aspect.
- Cooperation: with the help of colleagues, many of those problems and fears generated are more easily overcome, or, in fact, is the way to solve them.
- Creativity in materials and spaces: we must take advantage of available resources to create adventure with them.
- Playful environment: to remove pressures and that everything flows in a motivating way, the activities will have a marked playful character.

In line with the above, with the type of activities that make up this model and the objectives that we want to achieve, we consider leadership, trust and self-confidence, the sense of courage, passion, the emotion to control danger, uncertainty, inventiveness ... are aspects developed in this model. When talking about fear we have to take into account that it can be objective (the risk that a task or activity has in itself) or it can be personal, subjective (the one that each person believes that involves that activity). Through experience and assessment situations, we must create a change in the students to give importance to the fear or objective risk.

The theoretical bases come from Experiential Education, also called Experiential. Education-Learning (Caballero, 2012b) and according to the Association for Experiential Education, "it is a philosophy and methodology in which the purpose of educators is to collaborate with students in direct experience and reflection focused in order to increase knowledge, develop skills and clarify values"(Gilbertson, Bates, McLaughlin and Ewert, 2006, p.9). In line with this idea is that of Rodas (2000), when he said that learning is better consolidated when people develop it

through their own experiences. Moreover, there are authors who affirm that it is an experimental model, in which the five senses must be used to achieve the goals or objectives (Fernández-Río et al., 2016). Therefore, the PANE are a means of experiential experiences in which students put into practice what they know, learn from what they see and, ultimately, get rich from what they have around them, from what they *live*. In this sense, they come into contact with knowledge coming into contact with nature.

In keeping with the model shown, the easiest way to carry it out is through hiking. Therefore, we will delve into this sport in relation to Adventure Education and using English as the communication language to achieve the proposed objectives.

2.2.2.1. Introduction to hiking

It is a regulated sport activity regulated by the Spanish Federation of Mountain Sports and Climbing (FEDME), consisting of a non-competitive activity carried out by traditional marked paths, in rural or urban areas, with the aim of showing the walkers the natural environment and traditional elements, to recover the old ways of communication.

The marked trails must guarantee a better state of conservation, greater security in the development of the activity, and there are also publications that facilitate their interpretation, providing historical, natural, social, cultural and tourist information.

Therefore, hiking is a completely regulated sport, since we have a manual where all the indications appear to be able to carry out not only the practice of this sport, but also the different types of trails, difficulty, how to create them, how to homologate them, how many there are and where to find them, what can we find in them, etc.

In addition, apart from this manual, there are also topographic guides, which are a specific guide for each path that offers practical and basic information about the topography of a place: beginning, end, water sources, unevenness, approximate duration, distance, points of interest, images of the place, map of the area, vegetation, accommodation, etc. In short, everything that may be useful for the journey of that path.

2.2.2.2. Types of trails

There are three types of trails whose homologation is international (appendix 4):

Long-Distance Trails (G.R.).

Known by the acronym GR, are itineraries that at least extend 50 kilometres in a duration of several days and are formed by the connection of roads, trails, paths, etc. not suitable for motor vehicles. Many of these routes have always existed to go from one village to another, real paths, for transhumance, etc.

The Long Distance trails (GR) are marked with white and red international signs. They have an identification number and can also have their own name, like St James' Way.



Image 1. GR.

Short-Distance Trails (P.R.).

They are known by the acronym PR and have a length between 10 and 50 kilometres, that is, they can be done in one or two days. They focus mainly on the knowledge of a specific environment through traditional paths and trails. It is not uncommon for some of these itineraries to start at a point in a GR to approach any point of interest or population.

Short-Distance trails are marked with white and yellow international signs. They are named with the initials "PR", an initial of the Autonomous Community to which they belong and the number corresponding to the Trail Registry.



Image2. PR.

Local Trails (S.L.).

Known with the abbreviations SL, are paths that allow access to a nearby place of singular character: a hermitage, a viewpoint, a spring, a waterfall, etc., whose maximum length is 10 kilometres, being recommended not to be less than 5 kilometres or two hours of walking.

The Local Trails are marked with the white and green international signs and are named with the acronym "SL", the initial of the Autonomous community to which they belong and the number corresponding to the Trail Registry.

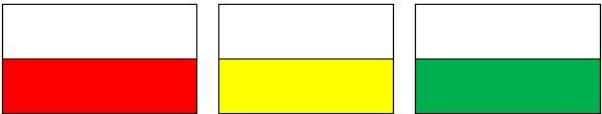
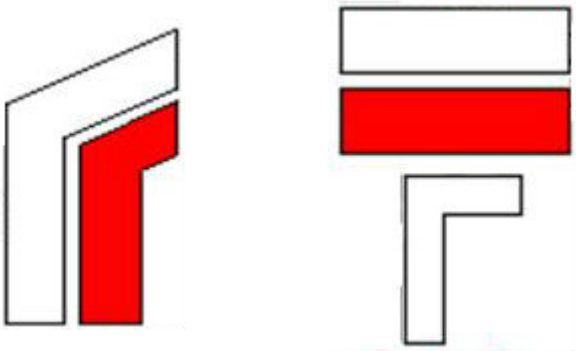
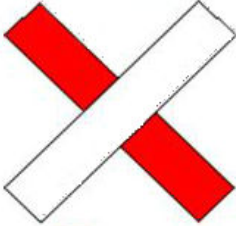
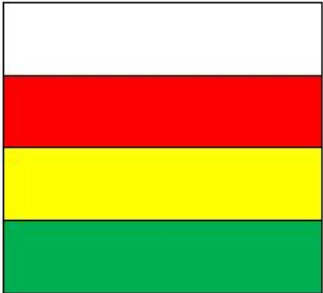


Image 3. SL.

2.2.2.3. *Signage of the trails*

In all these trails the same signalling system is followed, each path with the colour to which it belongs. This signalling consists of (Table 3):

Table 3. Signalling of the trails.

Mark	Terrain mark
<u>Continuity signal:</u> two horizontal parallel rectangles. The upper one white and the lower one of the colour to which the path belongs.	
<u>Change of direction:</u> pair of strokes at an angle to a continuity signal (to the right or to the left, depending on the change); Continuity signal and, according to the direction of rotation, makes an angle of 90°.	
<u>Wrong direction:</u> composition in the cross of the two strokes. The lower section will always be the coloured one and the upper one the white one.	
<u>Matching paths:</u> When a section of the path coincides between trails of different rank, the joint layout will be marked with the colours in order of hierarchy from top to bottom.	

2.3. Relationship between the key competences and the Physical Activities in the Natural Environment.

With the term interdisciplinarity we refer to the exchange and cooperation between different disciplines, which makes it a very important concept when carrying out the activity of hiking, even more when we practice it with children in the middle of the formative process.

With this definition we include both purely sporting and purely academic aspects. As for sports we can say that hiking (understood as the mere fact of walking) is the most practiced sport.

Many times, we do it even without realizing it. Most of the activities in nature, if not all, have one feature in common: to develop them we have to hike, either to reach the place where we start the activity (to reach the foot of a mountain to begin your ascent in climbing), either during the activity itself (while practicing canyoning) or at the end of the activity (at the end of a paragliding flight we have to walk where they pick us up).

Through hiking, understood as an activity in the natural environment, many aspects can be taught and developed in the education and socialization of the child. Within this interdisciplinarity we could include education in values. It is clear that nowadays and due in part to this digital age, many values of great importance are diminishing or are being lost. Well, hiking favours the development of a wide range of them, such as:

- companionship.
- friendship.
- respect for the rules.
- respect for others and nature.
- coexistence, mainly in activities longer than one journey.

Logically, being a sport first of all, we also include factors related to physical activity and the sport itself:

- Sports hygiene.
- Healthy habits.
- Improvement of physical qualities.
- Elimination of tensions.
- Recognition of trails and signs.

- Track tracking.

Advancing in this reasoning, we will see general ideas, with examples of what can be done during the exit to the path. We could think that the traditional academic contents are going to be the most difficult for children to assimilate, especially when they go out to the natural environment to forget for a few hours the school. The only difference lies in the practical nature that is given to learning in these circumstances. All the competences will be based on the aspects of knowing, knowing how to do and knowing how to be (LOMCE, 2013).

Again, we warned that we will only rely on the activity of hiking, maximizing the benefits in the case of extending the day with other activities.

2.3.1. Linguistics

Hiking will help them increase their vocabulary. During the tour they will find a large number of new objects for the students to be learned. There will be many that have been seen in the textbooks and they will have to be recognized, but for the most it will be the first time and during the day they will be observed often, so their learning will be easy and fun.

The new vocabulary they will acquire is related to flora, fauna, very basic notions of geology, orienteering, types of trails, ways of signalling, tracking, etc.

On the other hand, we will also develop how to express our ideas correctly and show a kind attitude towards others, being willing to dialogue in a constructive way.

2.3.2. Mathematics, science and technology

In the course of the trail we will cover a distance, finding slopes that will have to be saved, of course many trees and stones, an occasional river and / or stream to cross, etc.

In this way we will achieve two things:

- Firstly: they will discover that the objects look smaller in the distance without references that are familiar to them (buildings, traffic lights, cars), being more complicated and
- Secondly: they will learn a technique to measure the height of an unattainable object by using a stick and the shadow of the object.

Therefore, in this section we are going to focus on the distance calculation and measurements.

2.3.3. Digital

For this competence we will use elementary tools, available to everyone. First, in most of the information panels located at the beginning of the trails we can find a QR code, which will link us to all the information about that particular path. Secondly, we will use some smart phone application to track our route, to create a profile on the web of the application and to upload our route (track).

In addition, if we have knowledge on the subject of GPS, we can use them during the journey in two ways: either by pointing certain points on the route or by making sure that we follow a predetermined path of the trajectory our colleagues follow during their turn.

2.3.4. Learn to learn

When we leave our comfort zone, we feel insecure, with great uncertainty. When we also do it in a medium, zone or area with which we are not familiar, this insecurity increase, even feeling lost. The hiking is conducive to its easy interpretation of the guides and signs, which will soon forget that uncertainty, since we learn quickly to "travel" along a path, also learning other elements. Once the confidence in knowing which is the right path is achieved, everything draws attention, increasing curiosity and above all the desire to learn. To achieve this is what the initial talk is for (knowing what is known and what is unknown) and through the process of guiding the path and passing possible obstacles, doubts along the way, etc. we will see the planning and assessment strategies that students perform throughout it, to check that their task is proving positive and, therefore, even more motivating.

2.3.5. Social and civic

This competence consists of preparing students for social life and interpersonal relationships, to know how to resolve conflicts and participate constructively in society. It makes them know how to coexist in a plural society and contribute to its improvement. So through hiking there will be times when you have to resolve a conflict (at some crossroads, the best place to cross a river or the best time to stop and rest). In addition, it is a way of harmonious coexistence, since there will be students with different physical capacity and pace, so they will have to learn to democratically adapt the group to a condition according to all the participants.

2.3.6. Initiative and entrepreneurship

By acting as a guide, they will be able to plan and organize their turn, manage the time their intervention lasts, show their creative and innovative character, take advantage of their opportunity and demonstrate their knowledge.

We will give everyone the same opportunity to participate, but in certain aspects or moments we will check the initiative of some and the mediation of others, trying to reach everyone to have their role and thus increase their self-esteem and self-knowledge.

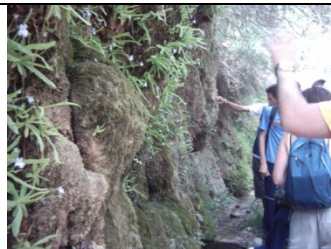
In short, through hiking we will see the ability to take risks, to dare to do things that seem difficult and, in this way, encourage and pamper the companions.

2.3.7. Cultural awareness and expression

It involves seeing the position of others, discovering the point of view of other people, understanding certain functions or acts based on a different field from ours, social level, age, sex, time period...

To enrich this competence, we can learn popular songs from the area, study certain elements of the path, habits of the inhabitants of the area, constructions, etc. Even the literature about that area in later classes, to analyse what is exposed in the books or articles (even cinema or theatre) and to be able to compare it with what lived on the path. In this way, all the elements of the terrain have a place in learning and we can take advantage of them, giving power to the designed activity (Table 4).

Table 4. *Examples of content on the trail.*

Flora, fauna and culture images		
		
Carnivorous plant	Mountain goat	Rock painting

2.4. Classification of the Physical Activities in the Natural Environment.

In relation to the trails it is necessary to include a classification of the PANE. Although the practice of hiking can be a specific task, it is very normal to complement this activity with another one, or at least to show the variety of occupations and open this possibility to the students.

Therefore, we can consider this classification based on the level of accessibility (Canales and Perich, 2000), considering them as:

- Difficult accessibility: we consider in this group what are known as adventure sports and include terms such as good physical condition, technology and not very consolidated or entrenched among the general population.
- Easy accessibility: the previous components are not as necessary, as they are widespread in the population.
- Mixed

We will now continue with a classification based on the medium in which the activities are developed, showing examples:

- Terrestrial: hiking, camping, tracking, bicycle touring, biking, zip line, mountaineering, climbing, caving, parkour, orienteering, survival, horseback riding, photographic hunting, bungee jumping, skiing, sledding, archery...
- Aquatic: swimming, canoeing, rowing, sailing, surfing, windsurfing, rafting, hydrospeed, diving, water skiing, outboard...
- Aerial: hang gliding, ulm, paragliding, parachuting, acrobatic flight, hot air balloon...
- Mixed

2.5. Organizational and legal aspects

With regard to the origin of the organization and offer of the PANE has gone from being practiced by a few lovers of mountains and natural spaces to be an important source of income for organizations and professionals, increasing the number of participants and the sports activities. Therefore, these practitioners who trust a sports professional must have guarantees of security and legal protection. In reality, this security must be bidirectional and therefore experts in the execution of these tasks must be covered by that same jurisdiction.

Precisely, except for the regulation of active tourism companies, the regulations regarding the activities in the natural environment are really poor and insufficient, referring to sports law (López Sánchez, 2016).

With this exception and following the same author, we will now study a key element in the organization of the activities that we are going to carry out, in order to avoid or demand responsibilities, knowing that a large number of teachers are in favour of this task but do not dare to put them into practice for the legal and criminal liability that could lead to an accident. This element is a contract, through which the activity to be performed is reported.

In line with the above, despite the fact that sports practice is considered a risk activity by the Courts, this contract is a means of reducing the insecurity of the organizer, underlining that most of the organizers sentenced in trials are for the bad state of facilities or materials and not for attention, care and interest in the activity (López Sánchez, 2016).

On the other hand, we can consider organizer to any legal or physical person, but it is necessary that these two situations occur: the procedure and direction for the activity to be carried out and the provision of the elements necessary for that service to be developed, without prejudice to whether the activity is paid or not.

All this confirms that the competent administrations, at the time of issuing permits, emphasize the idea that the organizer is responsible for the whole group. For this and in order to issue these authorizations favourably require some obligations to the organizers: certification, civil liability insurance and accidents, prevention plan, first aid kit, material in good condition and approved. Since each activity involves a different organization, apart from those requirements, those that are considered necessary for the safety of the participants in that activity may be requested.

Similarly, we must provide participants, in our case students, with all the information useful for the perfect development of the day. In the case of trekking activity, it would consist of the length of the route, level of physical exigency, responsible or guides, prevention of danger, etc.

To finish this point, it is necessary to comment on the section of exemption of responsibility of the organization in case of accident, which is usually included in authorizations and activity development permits. Well, these clauses are considered void, according to article 1102 of the Civil Code. However, to alleviate this situation and minimize the importance of the organizer's responsibility, the information given to the participant is completed with what is known as an informed consent. This does not exempt responsibility, but shows that the participant is informed of the risk involved in the activity.

In line with this approach and entering fully into hiking the Spanish Federation of Mountain Sports and Climbing created the Hiking Technical Committee, with the purpose of creating professionals in this task and equalize criteria and ideas in training, development and care of the trails. One of the functions of this Committee is to provide legal advice on everything related to this sport. In addition, a general objective is the mediation between the Autonomous Communities for the homogenous creation of the regulations on hiking. We must highlight here the recent approval of Law 3/2017, of May 2, on the regulation of trails in the Autonomous Community of Andalusia.

To conclude, the most important legislation regarding road network and trails and competences is shown below:

Legislation of the road network

- Roads and service roads: Law 25/1988 of Roads.
- Neighbourhood road, rural and forest track: Law of Neighbourhood Roads of 06/29/1911.
- Livestock track: Law 3/1995 of Livestock Tracks, articles 1 and 17.
- Right of way: Civil Code, articles 334, 339, 344 and 345.

Legislation on trails and competences

- Decree 20/2002 of 01/29/2002 on Tourism in the Rural Environment and Active Tourism. (Andalusia, Ministry of Tourism and Sports).
- Law 4/1989 amended by Law 40/97 on the Conservation of Natural Areas and Wild Flora and Fauna.
- Law 2/1989 of Protected Natural Spaces. (Autonomous Community of Andalusia).
- Law 7/1985, Regulating the Bases of Local Regime, articles 25.2 and 30.
- Royal Legislative Decree 01/1992. Law on soil regime and urban planning.
- Law 22/1988 of Coasts.
- Law 29/1985 on Water and Regulations.
- Law 10/1990 on Sport.
- Law 5/2016 on Sports in Andalusia, article 22.

3. DESIGN AND IMPLEMENTATION OF A HIKING ACTIVITY BASED ON ADVENTURE PEDAGOGY THROUGH THE CLIL APPROACH

A practical proposal of one of the simplest PANE development is presented below, with the pretension that any teacher could use it in their daily work, adapting it to the students and / or the area in which the school or high school is located.

Many authors show their agreement in affirming that the natural environment could be considered as the first school classroom, since the outdoors is the preferred place for individuals to develop their first activities in life (Palmberg and Kuru, 2000). In this same line are Granero and Baena (2007) considering nature as the largest PE classroom in the world. We only have to adapt those means presented in a natural way to the demands, needs and interests of students, in the pursuit of educational objectives. Therefore, combining the assertions of the different authors and the practice of the activity in the simplest nature, this practical proposal is called:

Hiking as content generator

These changes that we have seen in the PANE, together with the Adventure Education methodology explained above, favour a change and new trends in both formal and non-formal education. Therefore, the expansion of new educational, ecological, touristic and active products adapted to the natural environment and to the demands of the participants is created, promoting also responsible habits and sensitivity to nature, enabling their conservation and enjoyment. This growth, nowadays unstoppable, guides public administrations and private entities to the production, training and implementation of hiking infrastructures to cover the growing demand (Rodríguez-Aller, 2003).

Every day there is more proliferation of PANE in public and private schools and non-formal centres (gyms, associations, clubs, etc.), especially after the entry into force of the LOGSE. Many teachers use them to motivate the students and remove them from the routine in which they are immersed daily.

Most of these outputs connect physical education and health as the only learning, without considering the benefits that these sports practices bring in other facets of the student body (socialization, education in values, etc.).

The purpose with which this proposal is proposed is to take advantage of the educational nature of outdoor activities, as through practical teaching in the natural environment, using hiking as

a basis and English as the target language, students learn more and better than by a practical class in the schoolyard.

Hiking has a number of advantages that other sports do not have (referring to sports practiced in the natural environment):

- It is very easy to control by the teachers.
- Everyone knows how to practice it.
- No specific material is needed.
- It can be carried out in all places.
- It is very adaptable.

That is why creating curiosity in students will make the activities attractive, so that curiosity should be instilled in the students. There are times when what is really important is in the small, in what is barely visible or impossible to discover if we are not at the right distance or, for example, looking through something.

In the natural environment it is common to find certain elements on the trail that attract attention but are not given the importance it deserves. For example, a hole in the ground can hide a huge burrow, a system of galleries that serve as an escape for animals; a hole in a tree trunk can hide a nest or a water store; a hole in a rock can hide, for example, what we will watch next. With the following images we can see graphically how to foster this curiosity.



Image 4. Wall in a trail.

Walking along the path we find a wall. It seems that the end is the way and that the views are over. However, we see the students peering into a hole.

We are ready to peek into the hole, showing curiosity to see what will be on the other side.



Image 5. Approach.



Image 6. Lookout.

In the development of this proposal, the contents are a tool through which we will achieve that the students reach the proposed objectives and develop the key competences for their learning and socialization process.

There are trails that due to their geographical location, places of passage, routes, views, etc. are spectacular, but we as educators cannot be satisfied with that (although it helps to keep students attentive). Moreover, we have taken the students to the practice of this activity so that they can learn a series of contents with a more entertaining and fun learning method.

The purpose of the proposal is to make it feasible for all teachers and therefore we will see simple content:

- Hiking.
- Fauna, flora, geology, cultural and traditional elements.
- Distance calculation and measurements.
- Web applications, QR codes.

If we have the knowledge and necessary material, or we can receive help of whoever has them, we could complete the activity making it more attractive for the students by adding a couple of rope techniques:

- Rappelling: to descend a vertical wall with the help of a rope, a harness and a descender device.
- Zip line: crossing a slope with the help of a rope, a harness and a pulley.

Or any other we can carry out: archery, ropes, orienteering, canoeing, etc.

4. METHODOLOGY

4.1. Participants and context

I.E.S. Almicerán is the educational centre where the proposal has been developed. It is a rural public bilingual high school in Peal de Becerro (Jaén), within a village with a population of about 9.000 people. It is a recent centre located on the outskirts of the urban area and surrounded by mountains. Also, it is provided with the necessary technological resources to carry out ICT sessions without problems, such as desktop computers for students and teacher, laptops, digital whiteboard and projector. As a modern centre, it has both outdoor and indoor sports facilities. There is also a good atmosphere among teachers so collaborative tasks can be developed.

The students enrolled in the first and second year of the Compulsory Secondary Education have participated in this research, considering that in this educational stage they acquire a wide range of knowledge that will last throughout life, both academic and social. The sample was non-probabilistic for convenience, at the discretion of the centre's accompanying professor. These students have an English level expected for their age and educational grade, being a little above B1. They are open-minded and eager to learn, so their motivation is really high. The number of participating students was 100 (49 women and 51 men), whose ages range between 12 and 14 years ($M=12.99$, $SD=0.74$).

The group A (control) is the one that remained in class and was formed by 23 girls and 27 boys with ages between 12 and 13 years old ($M= 2.44$, $SD=0.49$).

Group B (experimental) is the one that made the trekking. It consisted of 26 girls and 24 boys between the ages of 13 and 14 ($M=13.54$, $SD=0.49$).

Each group was made up of 50 students, as it is the number of passengers that have a place in a bus and considering that it is a group neither small nor too numerous for hiking along the chosen path.

The staff that led the activity was formed by two specialists in nature activities (2 men of 44 and 42 years, with C1 and B2 English certificates, respectively) and three accompanying teachers of the centre, who teach the subjects of Physical Education (35 years old, 10 years of teaching experience and B2 English certificate), Computer Science (35 years old, 3 years of teaching experience and C1 English certificate), and the language assistant (21 years old, first year teaching and American English native). The last two were also responsible for directing the activity of the control group in the classroom.

Both students, parents and teachers, with the permission of the centre's management, authorized their participation through an informed consent (appendix 5).

4.2. Research design

A quasi-experimental design with an equivalent control group has been carried out (Montero and León, 2007) to verify the results of the activity in the knowledge about certain specific aspects of the path. Given that we wish to test a hypothesis about differences between the results achieved by two groups, each with a different procedure, we choose this design of two groups with non-probabilistic assignment with pre-test (Table 5).

Table 5. Groups.

GRUPOS	ASIGNACIÓN	PRETEST	TRATAMIENTO	POSTEST
Experimental	Not probabilistic	Yes	B	Test (T _E)
Control	Not probabilistic	Yes	A	Test (T _C)

The purpose with which this study is proposed is to take advantage of the educational nature of outdoor activities, as through practical teaching in the natural environment, using hiking as a basis, students learn more and better than through a practical teaching in the classroom.

With the intention of improving teaching, we will try to evaluate the effectiveness of two teaching procedures: a more traditional one (A), consisting of learning in the classroom, followed by the performance of tests or assessments; another more current (B), based on teaching in the natural context (trails) and evaluating the learning acquired through assessments at the end.

Therefore, our hypothesis would be that, to the extent that the second teaching procedure corresponds to didactic principles of Adventure Education and CLIL, it should offer better results, that is, if students learn through procedure B, they should correctly answer more questions of the final test than if they did it through procedure A.

In this case, the teaching procedure, with its two modalities (A and B) is the independent variable; the number of correctly answered questions in the appropriate assessment to be carried out by the students is the dependent variable.

We consider that variables such as intelligence, visual and auditory memory, interest, attention capacity, initial ability (knowledge already mastered before starting the investigation), the teacher, the time when the teaching session takes place, temperature, lighting, etc., can act as strange variables, and we will try to control them by forming the two research groups randomly and attributing equally the treatments (teaching procedures A and B) with which they are going to work. The variable “teacher” will try to be controlled by having the teachers of the two groups teaching alternately in the control group (procedure A) and in the experimental group (procedure B), so we will need the active collaboration of the teachers who participate in the group study.

4.3. Instrument

An evaluation test has been developed "ad hoc" (see Table 6) in which 10 questions are collected, common to both groups, which gather various knowledge acquired by the students. The grade awarded is 1 point per question correctly answered.

Table 6. *Test: Hiking as content generator.*

TEST: HIKING AS CONTENT GENERATOR		
1	What colours does a GR use?	White and red
		White and yellow
		White and green
2	Who practices hiking?	A trail
		A hiker
		A person
3	What animal does this horn belong to?	Fallow-deer
		Deer
		Wild pig
4	Which tree does this leaf belong to?	Holm oak
		Pine
		Gall oak
5	Which tree does this fruit belong to?	Boxwood
		Rosemary
		Juniper
6	What is this raptor?	Raven
		Eagle
		Vulture
7	Which stone is farther?	The right-hand stone
		The left-hand stone
		At the same distance
8	What is the name of the technique with which we go down a wall with a rope?	Hiking
		Zip line
		Rappelling
9	How would you measure a tree that you do not reach if you do not have a meter?	Using a stick
		Using the shadow of the tree
		Pythagoras theorem
10	Why do we sweat?	It is hot
		Increase body temperature
		Wearing too much clothes

4.4. Procedure

The way to carry out the program has been the following:

Step 1.- Explanation to the centre of the programme: An interview was arranged with the teachers involved in the activity and the prepared project was described, justifying the action with an improvement in the teaching through an exit to the natural environment. It was these teachers who communicated it to the management team.

Step 2.- Selection of the groups participating in the research: the choice of the two participating groups (control and experimental) was made by the Physical Education and the Computer teachers, with the requirement of belonging to approximately the same educational level, age and number of 50 people per group.

Step 3.- Adaptation of the contents to the participants: the educational contents were set according to the academic level of the students, so that they were not too easy or too difficult to interfere with the results of the intervention.

Step 4.- Execution of the program: refers to the intervention itself, that is, to the exit to the natural environment of the experimental group and to the explanation in the classroom of the control group.

Step 5.- Application of the questionnaires: before the intervention a test (pre-test) was passed to the students to check their knowledge. After the PANE program, the same test (post-test) was passed to compare results.

Step 6.- Study of the results: after the application of the post-test, we proceeded to the statistical analysis of the results, comparing the results of the control group with the experimental group and those of the experimental group in the pre-test and post-test.

Step 7.- Conclusions: once the results were analysed, they were interpreted and the deduction or exposure of consequences, as well as the description of lines to follow.

Step 8.- Discussion and dissemination of the results: finally, we proceeded to describe the possible lines of action with the students and to inform the rest of the teachers of the centre.

One week before the hiking activity, a pre-test was passed to the two groups (Control Group: $M=3.32$, $SD=1.52$ and Experimental Group: $M=3.54$, $SD=1.82$). The experimental group received intervention, that is, the day of hiking in the natural environment. The control group

received the same knowledge in the classroom. The following day the test was passed back to the two groups (Control Group: $M=6.56$, $SD=2.31$ and Experimental Group: $M=9.16$, $SD=1.22$) and the results were checked, showing that the higher variation of the means of the Adventure Education model could be the result of the treatment obtained, also assuming the possible influence out of control of some strange variable.

On the one hand, and referring to the experimental group (B), the activity consisted of a hiking trail in the morning and after lunch rappelling and zip line activities were carried out, as a complement to the activity and for the students to take a new experience. The route followed was a stretch of the GR-7 long-distance trail. Specifically, it is comprised between the village of La Iruela and Fuente del Oso (appendix 6), a spot located in the heart of the Sierras de Cazorla, Segura and Las Villas. This route is approximately 7 km long and lasts approximately 3 hours, with stops. The next day, already in class, the questionnaire was passed to them to check what they had learned.

For the intervention of this design, the objectives of Compulsory Secondary Education, present in Royal Decree 1105/2014 (appendix 7), of December 26, were taken into account. In reference to this proposal, the main objective was to make known hiking as the easiest way to carry out a physical activity in the natural environment through CLIL approach, adaptable to all situations.

In classes preceding the exit to the path, emphasis was placed on the contents that they wanted to reinforce, so that the students were familiar and could be made aware of the elements, difficulty, characteristics ... of the path itself and / or the area in which it is, so that during the activity they were relating different aspects that are on the trail with the peculiarities of the area in which it is located.

On the day of the activity a short explanation was made at the beginning of the route, taking advantage of the informative sign that it is usually at the beginning of the trails, with references to the legend of the sign, indications, suggestions, difficulty indication system, cartography, etc. At the beginning of the path and until the first crossing (in order to verify the signalling system in a real way), it was one of the guides who guided the group, but from then on it was the students themselves who did it. At the end of the day and before returning, a group reflection was made to analyse what was done and share the experience. All the material used in the activity was collected, verifying that everything was left as it was at the beginning (cleaning).

Because of this type of novel activities that create uncertainty, we started with a very brief theoretical task, to continue the practice of hiking. The methodology was participatory, fostering autonomy and creating a reflective attitude.

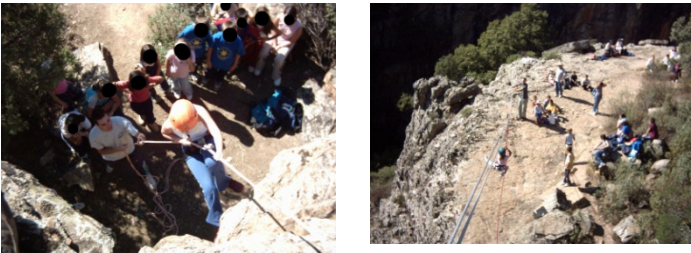
Teaching assignments, problem solving, and creative styles were used for teaching styles. The teaching techniques used were direct instruction and search. In addition, there was a global strategy in some actions and global polarization of attention in others.

At the beginning of the trail, by direct explanation of practical form with real examples in situ, a review was made of the types of trails and the way they are marked to be guided by them.

Once this explanation was done, through guided discovery, it was the students who were commissioned by couples to lead the rest of the group along the path. In this way, the contents were explained (the same as those of the control group), but as they appeared along the path.

The proposed path has low difficulty, so it was not necessary to wear technical shoes, but sports clothes and shoes, backpack, water, food, hat or similar and sun protection. Finally, we show the session held that day (Table 7):

Table 7. *Activities developed*

Task	Example
Arrival at the beginning of the path and brief theoretical explanation about the path in particular and the tasks we are going to assign to the students.	
Hiking route, where the students are being the guides, finding different natural obstacles along the way.	
In our case they also enjoyed rappelling and zip line activities.	
At the end of the day, a group reflection about what was done was carried out.	

On the other hand, and in reference this time to the control group (A), the day of the trip of their peers they were explained everything related to the topics discussed in the section on the relationship of key competences and the PANE:

- In Language they were taught new vocabulary, highlighting the following words: hiking, trail, hiker, GR, PR, SL, beacon, juniper, holm oak, gall oak, boxwood, fallow deer, vulture, eagle, canyon, rappelling and zip line. That is, those who were going to see their companions on the trails.
- In Mathematics they worked on the topics of measuring a distance using as reference items that are not normally used for this purpose and that of measuring heights using a stick and the shadow of the objects, as well as the experimental group.
- Regarding to Knowledge of the environment, it was given priority in terms of plants, animals and geology to oak, gall oak, juniper, boxwood, fallow deer, canyon, vulture and eagle, although they will also be taught other plants and animals. As regards cultural and traditional aspects, there was talk of defence and surveillance castles and ancient paths.
- Lastly, about Physical Education they were explained what sweating is and what it is for.

Everything that was explained was confirmed with pictures, so that learning would be more interesting and more secure. The language part was carried out in the classroom, through pictures of the words and activities that were wanted to learn, to later go to the schoolyard to see in a practical way the other areas (Mathematics, Knowledge of the environment and Physical Education).

With respect to the assessment, we followed the assessment criteria of the R.D. 1105/2014 (appendix 8).

Based on the activity of the experimental group along the way, other variables to be evaluated could be obtained, related to the key competences to be developed and education in values.

The next day in the Educational Centre, a short questionnaire (Table 5) was passed to all (groups A and B), to check if they had managed to reach the contents worked during the activities. All the students completed the complete questionnaire, although they were told that if they did not know the answers, they could leave them unanswered.

They were also asked to orally reason for a critical analysis of the activity in general, the activities included in it and the role of the teachers who participated in it.

Finally, the teachers carried out a self-critical analysis about the activity, risks, benefits, improvements, changes, attitudes towards the students and if they had achieved what was proposed with their realization.

4.5. Data analysis

For the analysis of the questionnaire data, we proceeded to analyse the students' tests taking as a reference the correction template for questions (appendix 9). Once the data were obtained, a descriptive analysis was made for the two groups (control and experimental), calculating the mean and standard deviation as the scores were a continuous variable.

In addition, another analysis performed is the scores of the 4 areas examined (language, mathematics, knowledge of the environment and physical education), with the aim of comparing the differences of these assessments in the pre-test and the post-test, also performing a test of differences of means (Student's t-test). For all the analysis, the Microsoft Office program, Excel spreadsheet (version 2007) of Windows was used for the descriptive statistics (means and standard deviations) and the program IBM SPSS Statistics version 19.0, for the difference of means test.

With regard to subjective data by the accompanying teachers and the students who participated in the hiking, in the final reflection of the day the technique of the analysis of feelings was used (Arcila, Barbosa and Cabezuelo, 2016), attending to the use of positive or negative vocabulary to refer to the activity.

5. RESULTS

When fulfilling the questionnaire, they were told that if they did not know the answer to a question, they could leave it blank. All the students answered all the questions, both from the control group and from the experimental group (Table 8).

Table 8. *Description of means, standard deviations and differences of means (t Student) in language, distance calculation, measurements, knowledge of the environment and physical education by groups and final scores.*

Variable	Group	Pre-test		Post-test		<i>p</i>		95% CI	
		M	SD	M	SD	Pre-test	Post-test	Lower	Upper
Language	Control	0.56	0.66	1.76	0.54	.035*	0.071	-1.16	-0.04
	Experimental	0.68	0.67	1.92	0.27			-0.33	-0.01
Distance calculation	Control	0.7	0.45	0.82	0.38	0.528	0.793	-0.12	0.24
	Experimental	0.64	0.23	0.84	0.36			-0.17	0.13
Measurements	Control	0.1	0.09	0.62	0.48	0.377	0.000*	-0.19	0.07
	Experimental	0.16	0.36	1	0			-0.51	-0.24
Environment knowledge	Control	2.5	1.45	3.48	1.4	0.263	0.000*	-0.24	0.88
	Experimental	2.18	1.35	4.92	0.33			-1.85	-1.03
Physical education	Control	0.44	0.49	0.74	0.43	0.547	0.000*	-0.14	0.25
	Experimental	0.38	0.48	1	0			-0.38	-0.14
Final scores	Control	3.32	1.52	6.56	2.31	0.312	0.000*	-1	0.32
	Experimental	3.54	1.82	9.16	1.22			-3.34	-1.86

Note: * <0.05; M: average; SD: standard deviation; p: level of significance; CI: confidence interval.

For the pre-test, the results in the different areas were (Tables 9, 10, 11, 12 and 13):

Table 9. *Scores for Language*

Language		
Success	Control	Experimental
0	27	22
1	18	22
2	5	6

Table 10. *Scores for Mathematics.*

Mathematics					
Distance calculation			Measurements		
Success	Control	Experimental	Success	Control	Experimental
0	15	18	0	45	42
1	35	32	1	5	8

Table 11. *Scores for Environment knowledge.*

Environment knowledge		
Success	Control	Experimental
0	5	6
1	10	12
2	9	10
3	10	12
4	13	9
5	3	1

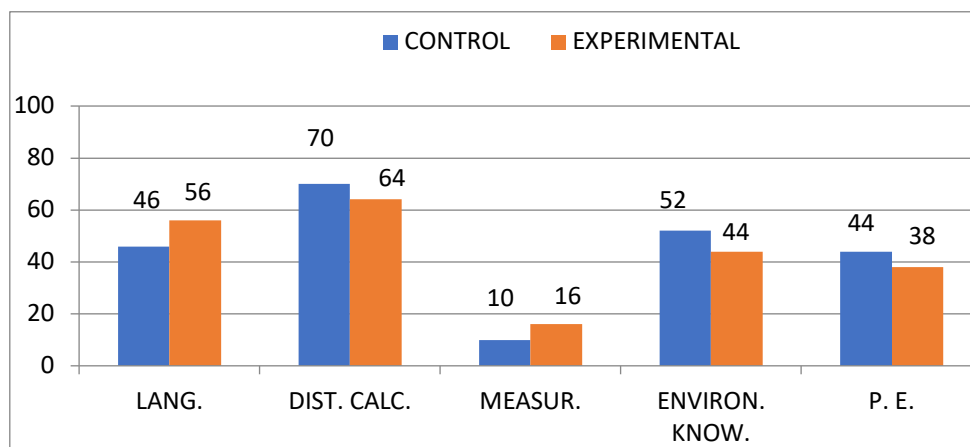
Table 12. *Scores for Physical Education.*

Physical Education		
Success	Control	Experimental
0	28	31
1	22	19

Table 13. *Pre-test results.*

Pre-test results		
Success	Control	Experimental
0	0	0
1	7	8
2	10	7
3	8	10
4	16	13
5	4	5
6	4	3
7	1	2
8	0	2
9	0	0
10	0	0

Comparing the results of both groups it is noted that they are homogeneous with respect to the percentage of correct answers (Graph 1).



Graph 1. Pre-test results: control and experimental groups.

It is reported that most of the concepts seen in the questionnaire have been new to them, so some of the answers could have been random, because even though they were told that if they did not know an answer, they could leave it unanswered, they have all answered.

- With respect to Language, the control group obtains 46% of correct answers, compared to 56% of the experimental group.
- In reference to the Calculation of Distances, the control group achieves a percentage of correct answers of 70% and the experimental group of 64%.
- The worst scores were for the Measurements, with the control group reaching 10% and the experimental group 16%.
- In Knowledge of the environment the control group has achieved 52% of correct answers. The experimental group 44%.
- Finally, for Physical Education, the hits for the control group were 44% and for the experimental group 38%.

It can be said, therefore, that there were no great differences between the two groups, since most of the concepts were new. We must highlight the high scores of the distance calculation area (it could be obtained by logic even though references not used by the students are used) and the low ones of calculation of measures (the method used for its calculation is new for these students).

Regarding the post-test, the results were (Tables 14, 15, 16, 17 and 18):

Table 14. *Scores for Language.*

Language		
Success	Control	Experimental
0	3	0
1	6	4
2	41	46

Table 15. *Scores for Mathematics.*

Mathematics					
Distance calculation			Measurement		
Success	Control	Experimental	Success	Control	Experimental
0	9	8	0	19	0
1	41	42	1	31	50

Table 16. *Scores for Environment knowledge.*

Environment knowledge		
Success	Control	Experimental
0	0	0
1	2	0
2	17	0
3	6	1
4	5	2
5	20	47

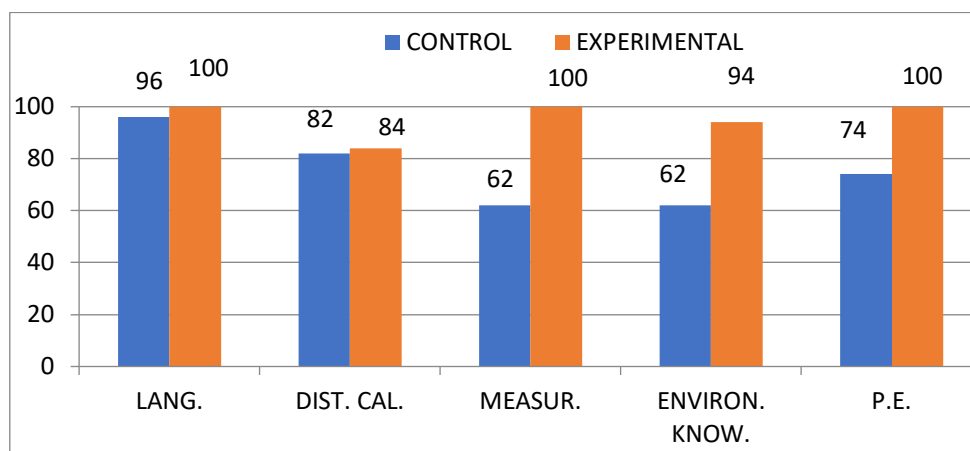
Table 17. *Scores for Physical Education.*

Physical Education		
Success	Control	Experimental
0	13	0
1	37	50

Table 18. *Post-test results.*

Success	Post-test	
	Control	Experimental
0	0	0
1	0	0
2	0	0
3	2	0
4	8	0
5	16	1
6	1	1
7	3	5
8	7	3
9	3	12
10	10	28

Taking into account and analysing these results, it is observed that on this occasion the experimental group obtains better results in all the areas, standing out in two of them exceedingly (Graph 2).



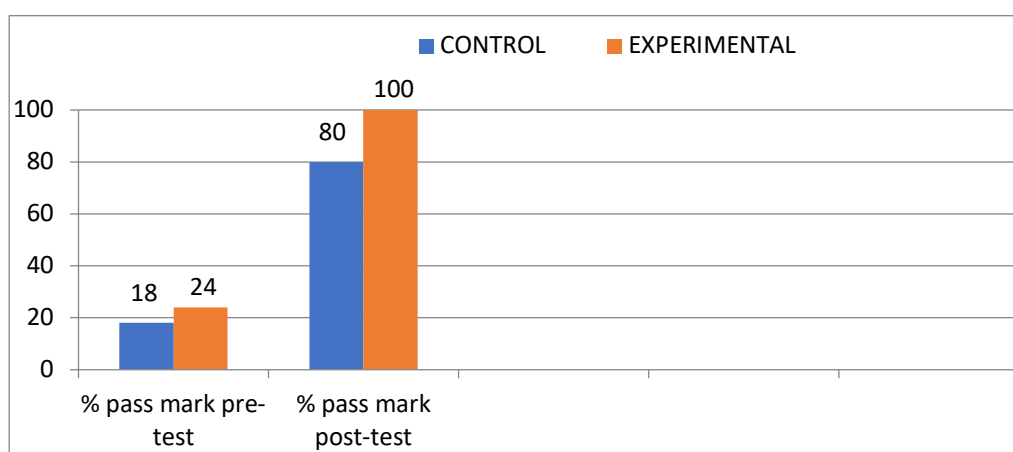
Graph 2. Post-test results: control and experimental groups.

- Regarding Language, the control group (A) had a correct response percentage of 96%. The experimental group had a 100% success rate.
- However, in Mathematics there were more differences: the control group showed 82% correct distance calculation answers and 62% in measures, compared to 84% in distance calculation and 100% in measures of the experimental group.

- But where the experimental group has stood out has been in Knowledge of the Environment. On this occasion, the control group had a total of 62% good responses and the experimental one a total of 94%
- In Physical Education, the experimental group also obtains better results, since it obtains 100% correct answers and the control group 74%.

Therefore, we can say that there is an important difference in the area of measures in Mathematics (38%), in Physical Education (26%) and in Knowledge of the Environment (32%). There is also a difference not so important in Language, which is only 4%. To finish, we have to say that in distance calculation no difference was appreciated (2%).

As regards the pre-test and post-test of the two groups, it is found that the difference of correct answers is notably higher in the experimental group after the intervention (Graph 3).



Graph 3. Comparison of % of pass in both groups.

6. DISCUSSION

In relation to demonstrate the effectiveness of the educational model of Adventure Education through CLIL, compared with a traditional methodological approach, it is found that in general the results are better in the experimental group, although it has been perceived that the work during the path has to be done in a very pleasant way for the students, seeing that when they change the classroom for a natural environment, they tend to disperse and pay little attention, so we have to be careful and explain everything in such a way that it catches their attention, through practical examples when necessary.

We even affirm that this type of work favours a greater development in socializing aspects of the students, as we show in the point of the relation of the key competences and the PANE.

In addition, the LOMCE establishes that students must be educated from a positive personal experience and that they must achieve autonomy of action. The learning must be functional, providing the students with different motor experiences that can be used in different future contexts of their lives and allowing them to build their map of enrichment and personal improvement activities. The activities that provide primary motor experiences (walking, running, swimming, climbing, riding...) are very important, since they put the person into activity.

The present experience left the participants very satisfied. All agreed to value it as very positive and the importance of including it in future courses due to the many benefits it provided; it was described as very fun, attractive, innovative, interesting, educational, training, etc. Also, the participating teachers showed their desire to improve the present experience and considered as very positive the possibilities of work both in terms of interdisciplinarity and the transversality of the issues addressed, to extend the present experience to other areas of the curriculum.

These judgments and reflections of the participants are shown in Graph 3, comparing the pre-test and the post-test. Although both groups have improved significantly, the experimental group has obtained 100% approval after the intervention.

The results obtained coincide with those of other investigations carried out with different examples of PANE. In this way, in the research on *vias ferrata* (climbing ways) carried out by Baena, Serrano and Fuentesal (2013), students obtain improvements in relation to decision-making based on their possibilities, also encouraging collaboration and increasing their autonomy and producing an improvement in the perception of danger and responsibility, both personally and with colleagues.

Baena and Granero (2009), in their work on caving, highlight the motivating nature of the PANE and speleology in particular for the novelty, emphasizing the criticisms and complaints that students make of traditional PE contents. These results are similar to those obtained by Escaravajal and Baena (2016) in another work on caving, this time within the School Centre. The educational programs for PE through Adventure Education, according to the work of Baena (2011), promote emotional, social, physical, self-confidence, communication skills, cooperation and problem solving. It also highlights the design of specific programs to improve cognitive activities, being in line with the research we have developed by relating them to educational content.

Likewise, the research carried out by Pérez (2012) on geocaching shows in its results the search for new experiences, adapted to the interests, tastes and needs of the students. The aim of the author

is to engage them in physical activity to improve their health. Geocaching serves as a link between the natural environment and new technologies.

In the same line is the work of Peñarrubia-Lozano and Marcén (2015) in which they make a study in the city of Zaragoza concluding that they favour the development of educational competencies and the transmission of values.

Parra, Domínguez and Caballero (2008) analyse the field notebook in the PANE and end by ensuring that they serve as a connection between the different educational areas and therefore favour the interdisciplinary work of the teachers.

From another perspective, Baena and Granero (2013) see how students progress with regard to fun and satisfaction, reducing boredom in turn, they are motivated to introduce new things and want to participate in learning. At the same time, they perceive how their perception of their body image, competence and self-efficacy increases, as does their perception of physical condition. Being new content for students, significant progress in self-esteem is generated.

Based on the positive development approach through the intervention of Caballero and Delgado (2014), these authors point out that the social responsibility project is a method to offer teachers guidelines to carry out an intentional, strict and systematic intervention to achieve this development positive in the students.

The research also covers the field of motivation, such as the study developed by Trigo, Navarro and Rodríguez (2016) in which it is ensured that after the intervention not only the motivation was improved in all the participants, but the percentage of demotivation decreased, showing interest in these forms of Physical Education work.

In another similar study, the evolution of emotional maturity in students of Basic Vocational Training (Moneo, Jiménez and Jiménez, 2016) was analysed, confirming a positive evolution in emotional maturity and creating a better classroom environment, in the face of the learning process, forming a better concept of their peers.

In reference to ICT, the PANE use technological resources available to students and endorse active experiences relating the natural environment with applied science to this medium (Fernández, Herrera-Vidal, Navarro, 2009).

As a result of the intervention carried out, we can infer that through the Adventure Education methodology and CLIL approach, numerous benefits can be obtained that are not achievable by the traditional methodology, as we have corroborated when analysing similar studies and

investigations. Based on these studies and by adapting the PANE to students, teachers, material and human possibilities and school environment we will be able to use any activity in the natural environment to get the most out of it, developing key skills and other characteristics related to psychological aspects, such as self-esteem, reduction of anxiety, memory, productivity, etc. For this, as we have seen, specific knowledge and imagination are necessary, due to the level of uncertainty and the changing space that surrounds this type of tasks.

However, it would be interesting to develop work proposals and consider which activities are more conducive to take advantage of capacities and / or areas of work, content, values, which are more attractive and ultimately, more successful.

Therefore, and to verify the success of this study, it is necessary to analyse the results obtained in our research in relation with the objectives.

7. CONCLUSIONS

The conclusions reached that respond to the objectives are:

- The analysis of the evolution of the current trends in the teaching of Physical Education through Physical Activities in the Natural Environment shows a progress towards the leadership of them, giving them increasing importance and giving more autonomy to the Educational Centres for their development. Therefore, it is again proven that adaptation to the participants and to the Educational Centres is of vital importance for their success. Regarding the key competences of the current Law, they can be developed entirely in the Physical Activities in the Natural Environment without distinction of activity. This development takes place not only in the educational sphere, but also in the social sphere and in the control of emotions, provided that the characteristics of the activity are adapted to the characteristics of the participants.
- The intervention carried out through CLIL and Adventure Pedagogy has been developed successfully and with the expected results. In relation to the participants, when belonging to a rural environment, the concepts worked on have been novel, being this way easier the analysis of data and the development of the test carried out for the action.
- Through this program, it has been possible to raise awareness and convince the participating teachers of the advantages, benefits and possibilities of Physical Activities in the Natural Environment and CLIL, contributing a natural state to learning. In the same vein, the legislation and basic norms of organization and responsibilities are unknown issues for the majority of the teaching staff, so that through this intervention they have been facilitated

and made known, stating that their development is not complicated and it is within the reach of any teacher interested.

- In the rural environment in which these students live, Physical Education is perceived as a means of being in shape, to improve their health but in a compulsory, non-natural way. This proposal has been able to change that perspective, getting positive and motivating attitudes towards physical activity as a method of facilitating the activities of daily life. The trail is an ideal place to find a large number of strange elements along the way, so that they can be used to test (physically and intellectually) students. This fact has led to the enrichment and success of this activity to have taken advantage of trunk, rocks, rivers, ravines and slopes.
- Cooperation and companionship are two elements that have gone hand in hand in the activities proposed. It is necessary to promote teamwork to achieve the goals. Sportsmanship, sports values and social values have been taken into account during this task. They should be promoted, since students tend to be very good in certain aspects and bad in others, so we must seek cooperation among the members of the group. For the achievement of a purpose in the natural environment there are usually different methods of achieving it, depending on the characteristics, perception or imagination of the student. That is why they must induce different ways to achieve these purposes. As we can see again, cooperation and collaboration are essential.
- In the comparison of the results of the differences of scores in the pre and post-test after the intervention, it is obtained that in both groups the scores are better. However, in the experimental group all the students were successful in the post-test.

In short and based on the results we can confirm the hypothesis and affirm that the intervention program based on the pedagogical approach of Adventure Education through CLIL has caused a positive increase in the mean scores of the students of the experimental group.

8. LIMITATIONS AND FUTURE PROSPECTS

Despite the results obtained, our work presents a series of limitations that must be assumed. The first one is related to the instrument used, which has been prepared ad hoc. We consider that the test used (composed of 10 items) is insufficient to obtain significant results, so that its number should be increased. In the same way, for a greater inference, its validation by the scientific community would be needed.

The second limitation is due to the natural environment itself, being a variable medium in which the interaction between teachers and students is constant and with a large number of variables

that are not quantifiable and difficult to control, depending on the teacher, the students, the context, the activity, etc. This uncertainty is what brings that attractive level to the PANE, due to their own environment and physical activity (Caballero, 2012b).

We also consider as a third limitation the small number of students for the study, from the same Secondary school. This study can be considered as a start-up to continue in more deeply.

According to the proposed activity, it is necessary to adapt or create tests depending on the main activity carried out. In the same way, this adaptation must be readjusted to the educational level, age and scope of the students.

Therefore, we believe that it is necessary to develop more interventions to investigate the effects of these approaches, using participants from different backgrounds (baccalaureate, vocational training, sports schools, etc.).

In addition, it would be interesting to study the main accidents that take place in these activities, which can help us to control and minimize possible contingencies, being one of the aspects that offers the most respect to teachers or educators. Not only an accident study, but also a security protocol for them.

However, these limitations can be overcome through the following research perspectives that become opportunities for future research work.

As we have seen, we must first validate the questionnaire proposed by the scientific community.

In addition, the number of PANE is huge and every day are new ones, so it is necessary to constantly update the news and improvements of these approaches.

This program could be implemented, with greater adaptations and interventions of activities, to students dedicated in a future to the teaching of physical activities, either in the field of Primary or Secondary Education.

Nowadays, there are new approaches to the PANE, so that it is not surprising that several alternatives are deployed for the same activity. For example, for the same hiking route a practitioner can perform it as quickly as possible, another quietly and enjoying that calm (known as slow adventure) and another stopping to observe plants or collect fruits. Well, this is exactly what is intended with these tasks, that each student take advantage of this opportunity to enjoy the natural environment.

In relation to this rapid progress of the PANE and further deepening the methodology of Adventure Pedagogy, we could even develop a training system in the natural environment,

leaving the School Centre environment but equally valid, since the qualities and skills chosen would be worked in a different way.

In the same way, it would be interesting to analyse why, although the teachers affirm that these activities are interesting and useful, they are not carried out in the Educational Centres.

Finally, the fact that technology is immersed in this environment is also indisputable. Bearing in mind that this technological evolution begins at a very early age, we have no choice to include it in certain situations, always emphasizing its educational nature.

Therefore, assuming that it is always in continuous evolution, it is important not to be afraid and look to the future as an adaptation more, as a further challenge and as we have seen there are different ways of reaching it, but all correct. We must instill a transfer of what was done in a Physical Education class in the natural environment to their leisure time and to their daily life.

9. SOCIAL TRANSFER

All research work of this nature must revert to society. In this sense there is a paradoxical fact in it given that it is in opposition to the ideal of education through the PANE. As we have said before, the increase of practitioners of activities in the natural environment in general and of hiking in particular is a generalized fact at all levels. Well, the incongruity lies in the fact that to practice it, we must do acts opposite to the purpose pursued, such as early riser to do so, driving long journeys, to which is added fuel consumption, psychological stress in the driving, hurry during the activity with the danger that can lead... (Leader II, 2001). Therefore, with this practical proposal it is pretended to teachers and leaders of PANE to realize that are not necessarily long displacements neither expenses to develop this simple activity: walking. Walking is an activity available to everyone, anywhere, for any age and physical condition.

For an activity to be successful, it is necessary that it generates positive feelings. In particular, hiking generates a feeling of well-being and peace in all practitioners, originating with their practice the need to exercise, from which the athletes benefit.

The first point to consider is the reduction of sedentary lifestyle, which as we know is a problem that increasingly affects the population. The habit of hiking promotes social relationships, companionship, makes us break with the routine and connect with nature. This theme can originate affective feelings in the students, encouraging this exercise, since normally the paths run along ancient paths used by our ancestors and this is usually a reason for empathy towards these people, remembering their way of life.

A second aspect that the PANES cause is the awareness of equality, that we must trust and cooperate with each other. In this way, more responsible people are created, more sociable and more respectful with others and with the Environment.

By relating what has been done in these activities to the future, we can train individuals capable of analysing a situation from different perspectives, which is definitely one of the characteristics we seek to encourage our students to avoid frustrations and failures. Consequently, we also consider in this way that it facilitates relations between generations, seeing this situation as an evolution in individuals, sharing the same space and creating awareness that in the future we will also reach that age.

Another important consideration is the reflection capacity formed with the execution of these actions. When not obtaining success through a form or observing how another partner has done it, it feeds the capacity of analysis and observation, which as we see is related to the ability to see from different perspectives.

In accordance with the foregoing, these experiences encourage people to carry out activities with hardly any financial expenses, only needing the minimum amount of material for their realization and that, based on the level and the requirement of the land, it does not even have to be technical. Take the example that we have all seen the hikers who leave after eating on paths or roads near the town centre.

From another point of view and evolving or adapting to society and current needs, it is necessary to comment on a really novel aspect: the applications in the PANE (Fernández, Baena and Luque, 2017). For this we have a large number of them (appendix 10), for all levels and for a large number of activities. What is more, in a society in which we often have little free time, we have no choice but to go out into the natural environment in solitude, which is why some of them provide us with security. It is a way to combine two aspects that attract the attention of students: ICTs and PANE.

Consequently, and after these considerations, we note that the facility present for the realization of PANE can also be a reason for caution, because the changing nature of the natural environment is essential to have a minimum of security measures, which as we saw is an essential requirement. In this way we will teach the students to watch over their safety and that of others in social life, minimizing imprudence.

Finally, we consider very important and we cannot forget the fact that the benefits provided by the PANE are numerous, but that in the first instance they depend on the professional who

directs the activity, on the ability to manage people, on their disposition, the attention about safety and care in the risks that manifest. In short, of our illusion, we must be the first to be sure of the benefits it produces. Despite the attractiveness of the activities, as professionals we must have a great imagination if we want to be successful.

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11.APPENDICES

Appendix 1. Objectives of Compulsory Secondary Education and evaluation criterion (Order July 14, 2016).

Objetivos

La enseñanza de la Educación Física en Enseñanza Secundaria Obligatoria tendrá como finalidad el desarrollo de los siguientes objetivos:

1. Valorar e integrar los efectos positivos de la práctica regular y sistemática de actividad física saludable y de una alimentación sana y equilibrada en el desarrollo personal y social, adquiriendo hábitos que influyan en la mejora de la salud y la calidad de vida.

2. Mejorar la condición física y motriz, y conocer y valorar los efectos sobre las mismas de las diferentes actividades y métodos de trabajo, desde un punto de vista saludable y dentro de un estilo de vida activo.

3. Desarrollar y consolidar hábitos de vida saludables, prácticas de higiene postural y técnicas básicas de respiración y relajación como medio para reducir desequilibrios y aliviar tensiones tanto físicas como emocionales producidas en la vida cotidiana.

4. Participar en la planificación y organización de actividades físicas, coordinando su trabajo con el de otras personas para alcanzar los objetivos comunes establecidos.

5. Identificar las diferentes partes de una sesión de actividad física, seleccionando las actividades adecuadas en función del objetivo propuesto.

6. Planificar, interpretar y valorar acciones motrices de índole artístico-creativas, expresiva y comunicativa de carácter tanto individual como grupal, utilizando el cuerpo como medio de comunicación y expresión, reconociéndolas como formas de creación, expresión y realización personal y prácticas de ocio activo.

7. Conocer y aplicar con éxito los principales fundamentos técnico-tácticos y/o habilidades motrices específicas de las actividades físico-deportivas tanto individuales como colectivas, en situaciones de oposición y en situaciones de colaboración con y sin oponentes, practicadas a lo largo de la etapa.

8. Identificar, prevenir y controlar las principales lesiones y riesgos derivados de la realización de actividades físicas, adoptando medidas preventivas y de seguridad, y activando, en caso necesario, los protocolos de actuación ante situaciones de emergencia.

9. Valorar la riqueza de los entornos naturales y urbanos de Andalucía así como la necesidad de su cuidado y conservación a través del uso y disfrute de los mismos mediante la práctica en ellos de distintas actividades físicas.

10. Desarrollar la capacidad crítica respecto al tratamiento del cuerpo y de cualquier práctica social y/o actividad física, discriminando sus elementos positivos y negativos, incluyendo su impacto ambiental, económico y social.

11. Mostrar habilidades y actitudes sociales de respeto, trabajo en equipo y deportividad en la participación en actividades físicas, juegos, deportes y actividades artístico-expresivas, independientemente de las diferencias culturales, sociales y de competencia motriz.

12. Utilizar responsablemente las tecnologías de la información y la comunicación para recabar, presentar y compartir información sobre diferentes aspectos relacionados con la actividad física y el deporte, incluyendo su propia actividad, contrastando y citando las fuentes consultadas.

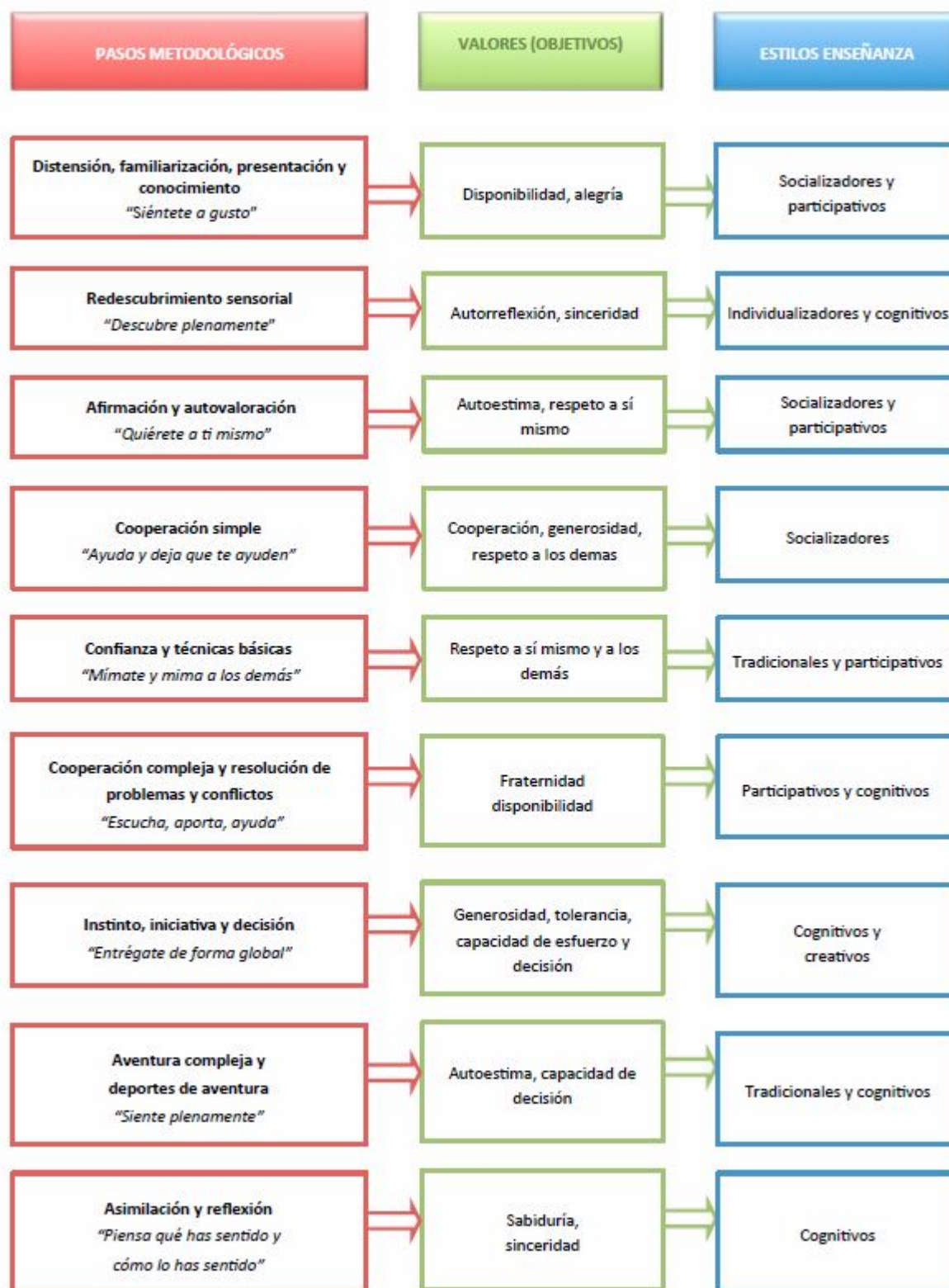
Evaluation criterion for all Compulsory Secondary Education (CSE) courses

Participar en actividades físicas en el medio natural y urbano, como medio para la mejora de la salud y la calidad de vida y ocupación activa del ocio y tiempo libre (criterion 11 for the first and the third courses; 12 for the second course; and 13 for the fourth course).

Appendix 2. Principles of Adventure Pedagogy (taken from Caballero (2012b), based on Parra et al., (2009).

El aprendizaje se construye a través de la experiencia. Partimos de la vivencia de unas experiencias planificadas, para asimilar, por medio de la reflexión, aspectos conceptuales, tomar conciencia del comportamiento, etc.; en definitiva, construir el aprendizaje.
El proceso de enseñanza-aprendizaje se convierte en un reto para el profesor, con la finalidad de contribuir al desarrollo personal y social de los alumnos y al suyo propio.
La puesta en práctica de las actividades y de la propia metodología requiere de formación previa y continua del profesor.
La aplicación de un programa educativo mediante la pedagogía de la aventura requiere de un proceso de planificación previo, en el que se establezcan objetivos concretos, actividades/experiencias planificadas y un sistema de evaluación.
Se mima la creación de un clima positivo que proporcione las condiciones de seguridad psicológica/física y de confianza adecuadas. El establecimiento de normas de convivencia o la resolución de conflictos, de forma dialogada y autónoma por parte de los alumnos, son herramientas fundamentales para conseguir un clima positivo.
Se fomenta la interacción mediante la actuación planificada del profesor. Crear canales de comunicación entre el profesor y los alumnos o diseñar actividades donde sea necesario cooperar son algunos de las acciones que debe realizar el profesor.
Diseñar y aplicar actividades, espacios y materiales que inviten a aprender. Se trata de conseguir que los alumnos estén motivados por participar en las actividades.
Las actividades han de implicar a los participantes de forma global, involucrando al mismo tiempo la parte intelectual, emocional, social y física.
Las actividades se presentan en forma de reto con múltiples soluciones, que el alumno debe superar por medio de la búsqueda de soluciones, investigando, experimentando, siendo creativo, etc.
Las actividades físicas en el medio natural y las actividades de reto/aventura presentan un contexto privilegiado para conseguir el desarrollo personal y social de los alumnos.
El alumno se siente el protagonista del proceso de enseñanza-aprendizaje al tener oportunidades de elección y de voz durante todos los momentos pedagógicos: antes, durante y después de las actividades. El alumnado toma las riendas de su propio aprendizaje, asumiendo un mayor nivel de responsabilidad.
Durante las actividades el alumno experimentará el éxito y el fracaso, aportando ambas situaciones experiencias de aprendizaje positivas.
A lo largo del proceso de aprendizaje experiencial, el alumno participa activamente en el planteamiento de preguntas, investigando, experimentando, resolviendo problemas, asumiendo la responsabilidad, siendo creativo, curioso y construyendo el significado.
El profesor tiene una labor de acompañante del proceso de aprendizaje del alumno, mediante el establecimiento de actividades/experiencias adecuadas, plantear problemas, establecer límites, apoyar a los estudiantes, asegurar la seguridad física y emocional y facilitar el proceso de aprendizaje.

Appendix 3. Methodological steps, values and teaching styles of the Adventure Pedagogy (Parra et al., 2009).



Appendix 4. Types of trails (Hiking manual, 2001).

Name	Length	Marks	Determination	Numeration	Variants	Derivations	Peculiarities
GR Long-distance trail	More than one day	White and red	• GR (space) N°	• FEDME	Yes	Yes	
PR Short-distance trail	Completed in a day	White and yellow	• PR-city letter (space) N° autonomy	• Autonomic • Territorial	Yes	Yes	Can have less than 10 km and still be a PR, depending on the difficulty, unevenness, etc.
SL Local trail	Up to 10 Km. and minimal difficult minimal	White and green	• SL-city letter (space) N°	• Autonomic • Territorial	No	No	
Variant	Maximum 2 days, less than 50 Km.	White and red or White and yellow	• GR (space) N° (point) N° • PR- city letter (space) N° (point) N°	• FEDME • Autonomic	No	Yes	
Derivation	1 hour (round trip), 3 Km.	White and red or White and yellow	• Toponymy name	• FEDME • Autonomic	No	No	It may not be marked
Link	Maximum 2 days	White and red	GR (space) N° (dash) N°	• FEDME	No	¿No?	
European	That runs for 3 or more states	White and red	• E (space) N°	• E.R.A.	No	¿No?	Usually run by marked GR. In some cases, in the absence of GR, new itineraries can be drawn up

[illegible]

NORMAS DE COMPORTAMIENTO DE LOS ALUMNOS

1. La asistencia a las actividades complementarias (que son las que tienen lugar durante el horario lectivo) es obligatoria para el alumnado al que vaya dirigida siempre que no suponga un desembolso económico para el mismo, salvo excepciones debidamente justificadas.

2. La asistencia a actividades extraescolares, dado que se realizan fuera del horario lectivo, es de carácter voluntario para el alumnado.

3. A criterio de los responsables, la participación en actividades complementarias o extraescolares que se realicen fuera del recinto del Centro, podrá estar condicionada a la no existencia anterior de conductas contrarias a las normas de convivencia.

4. Ningún alumno/a participará en actividades complementarias o extraescolares que se desarrollen fuera del recinto escolar sin la previa presentación de la correspondiente autorización de su padre/madre/tutor legal, en la que, necesariamente, asumirá, en su caso, la responsabilidad derivada del comportamiento o actuación irregular de su hijo/a durante el transcurso de esta actividad al no seguir las indicaciones de los profesores y/o personas responsables-acompañantes.

5. Los/as alumnos/as que no participen en un viaje o cualquier otra actividad extraescolar o complementaria tendrán garantizada su normal escolarización durante todo el tiempo que dura dicho viaje o actividad. Por tanto, su asistencia a clase es, como de ordinario, obligatoria, siendo su inasistencia reseñada en el parte de faltas a clase. Los profesores de cada asignatura adoptarán las medidas necesarias para no perjudicar académicamente a los alumnos que participan en el viaje o actividad correspondiente (repaso de materia, resolución de dudas, realización de prácticas, comentarios de texto, etc.).

6. Los/as alumnos/as deberán obedecer las instrucciones de los/as profesores/as responsables acompañantes de la actividad, cooperar con ellos para la buena marcha de la actividad y comportarse con la corrección debida en todo momento.

7. Los/as alumnos/as NO podrán ausentarse del grupo sin la autorización expresa de los/as profesores/as responsables acompañantes.

8. Los/as alumnos/as NO podrán desplazarse a lugares distintos a los programados.

9. El comportamiento de los alumnos deberá ser correcto, respetando las normas básicas de convivencia y evitando situaciones que puedan generar tensiones o producir daños personales o materiales.

10. El incumplimiento de estas normas precisará de las medidas preventivas y correctas previas en el Decreto 85/1999 del 6 de Abril sobre los derechos y deberes de los alumnos y recogido en el R.O.F del Centro.

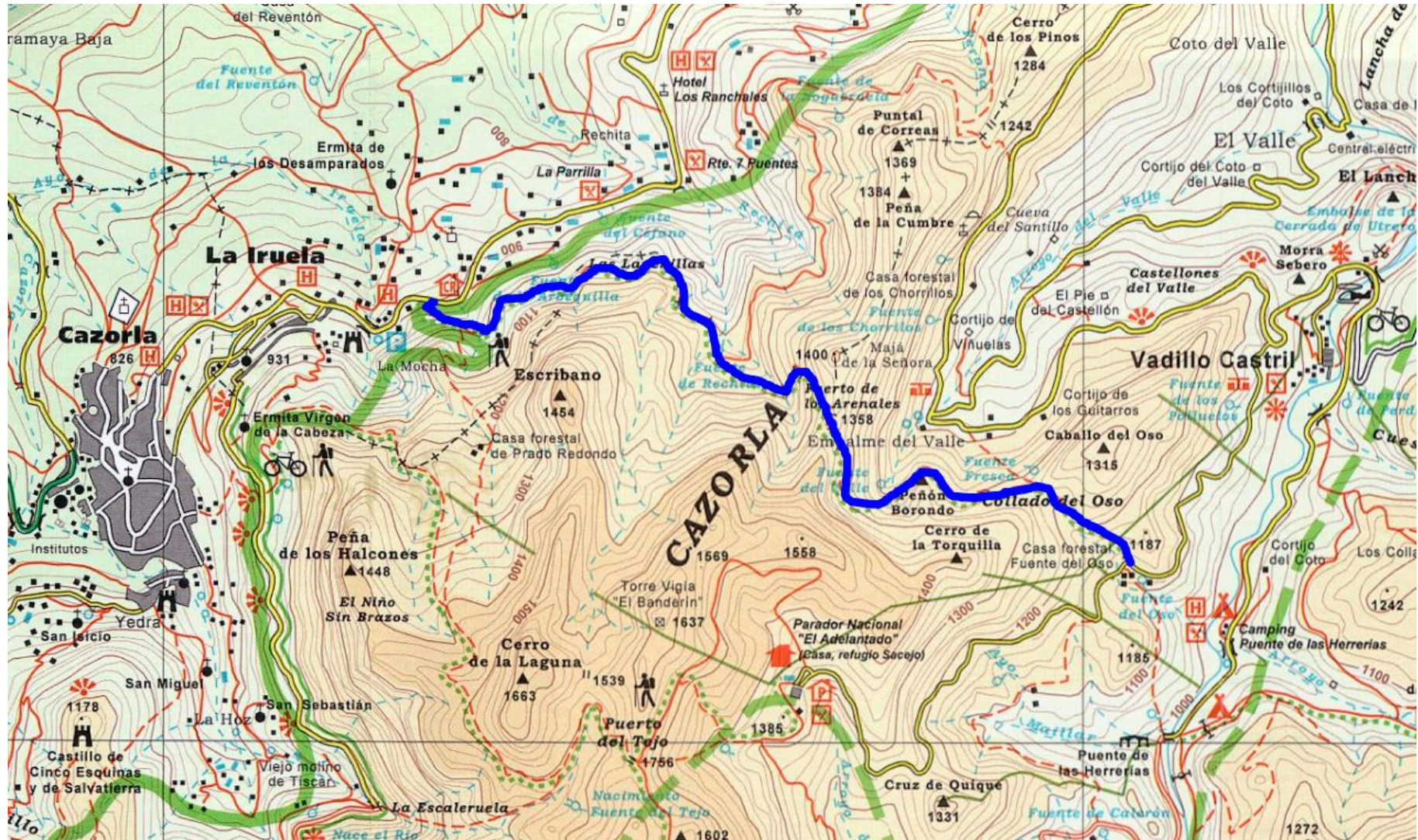
Los profesores responsables acompañantes de la actividad, puestos en comunicación con los Padres, madres, tutor/es legales y con el Equipo Educativo, podrán acordar suspender la actividad, individual o colectivamente antes de su finalización.

Además de las correcciones previstas, el/la alumno/a quedará excluido temporalmente o durante el curso escolar de participar en futuras actividades.

Me comprometo a respetar las presentes NORMAS durante el desarrollo de la actividad.
EL/LA ALUMNO/A

Fdo: _____

Appendix 6. Trail used for the activity.



Appendix 7. Objectives of Compulsory Secondary Education (Royal Decree 1105/2014).

Artículo 11. *Objetivos de la Educación Secundaria Obligatoria.*

La Educación Secundaria Obligatoria contribuirá a desarrollar en los alumnos y las alumnas las capacidades que les permitan:

a) Asumir responsablemente sus deberes, conocer y ejercer sus derechos en el respeto a los demás, practicar la tolerancia, la cooperación y la solidaridad entre las personas y grupos, ejercitarse en el diálogo afianzando los derechos humanos y la

igualdad de trato y de oportunidades entre mujeres y hombres, como valores comunes de una sociedad plural y prepararse para el ejercicio de la ciudadanía democrática.

b) Desarrollar y consolidar hábitos de disciplina, estudio y trabajo individual y en equipo como condición necesaria para una realización eficaz de las tareas del aprendizaje y como medio de desarrollo personal.

c) Valorar y respetar la diferencia de sexos y la igualdad de derechos y oportunidades entre ellos. Rechazar la discriminación de las personas por razón de sexo o por cualquier otra condición o circunstancia personal o social. Rechazar los estereotipos que supongan discriminación entre hombres y mujeres, así como cualquier manifestación de violencia contra la mujer.

d) Fortalecer sus capacidades afectivas en todos los ámbitos de la personalidad y en sus relaciones con los demás, así como rechazar la violencia, los prejuicios de cualquier tipo, los comportamientos sexistas y resolver pacíficamente los conflictos.

e) Desarrollar destrezas básicas en la utilización de las fuentes de información para, con sentido crítico, adquirir nuevos conocimientos. Adquirir una preparación básica en el campo de las tecnologías, especialmente las de la información y la comunicación.

f) Concebir el conocimiento científico como un saber integrado, que se estructura en distintas disciplinas, así como conocer y aplicar los métodos para identificar los problemas en los diversos campos del conocimiento y de la experiencia.

g) Desarrollar el espíritu emprendedor y la confianza en sí mismo, la participación, el sentido crítico, la iniciativa personal y la capacidad para aprender a aprender, planificar, tomar decisiones y asumir responsabilidades.

h) Comprender y expresar con corrección, oralmente y por escrito, en la lengua castellana y, si la hubiere, en la lengua cooficial de la Comunidad Autónoma, textos y mensajes complejos, e iniciarse en el conocimiento, la lectura y el estudio de la literatura.

i) Comprender y expresarse en una o más lenguas extranjeras de manera apropiada.

j) Conocer, valorar y respetar los aspectos básicos de la cultura y la historia propias y de los demás, así como el patrimonio artístico y cultural.

k) Conocer y aceptar el funcionamiento del propio cuerpo y el de los otros, respetar las diferencias, afianzar los hábitos de cuidado y salud corporales e incorporar la educación física y la práctica del deporte para favorecer el desarrollo personal y social. Conocer y valorar la dimensión humana de la sexualidad en toda su diversidad. Valorar críticamente los hábitos sociales relacionados con la salud, el consumo, el cuidado de los seres vivos y el medio ambiente, contribuyendo a su conservación y mejora.

l) Apreciar la creación artística y comprender el lenguaje de las distintas manifestaciones artísticas, utilizando diversos medios de expresión y representación.

Appendix 8. Evaluation criteria for Compulsory Secondary Education (Royal Decree 1105/2014).

Educación Física. 1º ciclo ESO

Criterios de evaluación	Estándares de aprendizaje evaluables
1. Resolver situaciones motrices individuales aplicando los fundamentos técnicos y habilidades específicas, de las actividades físico-deportivas propuestas, en condiciones reales o adaptadas.	1.1. Aplica los aspectos básicos de las técnicas y habilidades específicas, de las actividades propuestas, respetando las reglas y normas establecidas. 1.2. Autoevalúa su ejecución con respecto al modelo técnico planteado. 1.3. Describe la forma de realizar los movimientos implicados en el modelo técnico. 1.4. Mejora su nivel en la ejecución y aplicación de las acciones técnicas respecto a su nivel de partida, mostrando actitudes de esfuerzo, auto exigencia y superación. 1.5. Explica y pone en práctica técnicas de progresión en entornos no estables y técnicas básicas de orientación, adaptándose a las variaciones que se producen, y regulando el esfuerzo en función de sus posibilidades.
2. Interpretar y producir acciones motrices con finalidades artístico-expresivas, utilizando técnicas de expresión corporal y otros recursos.	2.1 Utiliza técnicas corporales, de forma creativa, combinando espacio, tiempo e intensidad. 2.2 Crea y pone en práctica una secuencia de movimientos corporales ajustados a un ritmo prefijado. 2.3. Colabora en el diseño y la realización de bailes y danzas, adaptando su ejecución a la de sus compañeros. 2.4. Realiza improvisaciones como medio de comunicación espontánea.
3. Resolver situaciones motrices de oposición, colaboración o colaboración oposición, utilizando las estrategias más adecuadas en función de los estímulos relevantes.	3.1. Adapta los fundamentos técnicos y tácticos para obtener ventaja en la práctica de las actividades físico-deportivas de oposición o de colaboración-oposición propuestas. 3.2. Describe y pone en práctica de manera autónoma aspectos de organización de ataque y de defensa en las actividades físico-deportivas de oposición o de colaboración-oposición seleccionadas. 3.3. Discrimina los estímulos que hay que tener en cuenta en la toma de decisiones en las situaciones de colaboración, oposición y colaboración-oposición, para obtener ventaja o cumplir el objetivo de la acción. 3.4. Reflexiona sobre las situaciones resueltas valorando la oportunidad de las soluciones aportadas y su aplicabilidad a situaciones similares.
4. Reconocer los factores que intervienen en la acción motriz y los mecanismos de control de la intensidad de la actividad física, aplicándolos a la propia práctica y relacionándolos con la salud.	4.1. Analiza la implicación de las capacidades físicas y las coordinativas en las diferentes actividades físico-deportivas y artístico-expresivas trabajadas en el ciclo. 4.2. Asocia los sistemas metabólicos de obtención de energía con los diferentes tipos de actividad física, la alimentación y la salud. 4.3. Relaciona las adaptaciones orgánicas con la actividad física sistemática, así como, con la salud y los riesgos y contraindicaciones de la práctica deportiva 4.4. Adapta la intensidad del esfuerzo controlando la frecuencia cardiaca correspondiente a los márgenes de mejora de los diferentes factores de la condición física. 4.5. Aplica de forma autónoma procedimientos para autoevaluar los factores de la condición física. 4.6. Identifica las características que deben tener las actividades físicas para ser consideradas saludables, adoptando una actitud crítica frente a las prácticas que tienen efectos negativos para la salud.

Criterios de evaluación	Estándares de aprendizaje evaluables
5. Desarrollar las capacidades físicas de acuerdo con las posibilidades personales y dentro de los márgenes de la salud, mostrando una actitud de auto exigencia en su esfuerzo.	5.1. Participa activamente en la mejora de las capacidades físicas básicas desde un enfoque saludable, utilizando los métodos básicos para su desarrollo. 5.2. Alcanza niveles de condición física acordes a su momento de desarrollo motor y a sus posibilidades. 5.3. Aplica los fundamentos de higiene postural en la práctica de las actividades físicas como medio de prevención de lesiones. 5.4. Analiza la importancia de la práctica habitual de actividad física para la mejora de la propia condición física, relacionando el efecto de esta práctica con la mejora de la calidad de vida.
6. Desarrollar actividades propias de cada una de las fases de la sesión de actividad física, relacionándolas con las características de las mismas.	6.1. Relaciona la estructura de una sesión de actividad física con la intensidad de los esfuerzos realizados. 6.2. Prepara y realiza calentamientos y fases finales de sesión de forma autónoma y habitual. 6.3. Prepara y pone en práctica actividades para la mejora de las habilidades motrices en función de las propias dificultades.
7. Reconocer las posibilidades de las actividades físico-deportivas y artístico-expresivas como formas de inclusión social, facilitando la eliminación de obstáculos a la participación de otras personas independientemente de sus características, colaborando con los demás y aceptando sus aportaciones.	7.1. Muestra tolerancia y deportividad tanto en el papel de participante como de espectador. 7.2. Colabora en las actividades grupales, respetando las aportaciones de los demás y las normas establecidas, y asumiendo sus responsabilidades para la consecución de los objetivos. 7.3. Respeta a los demás dentro de la labor de equipo, con independencia del nivel de destreza.
8. Reconocer las posibilidades que ofrecen las actividades físico-deportivas como formas de ocio activo y de utilización responsable del entorno.	8.1 Conoce las posibilidades que ofrece el entorno para la realización de actividades físico-deportivas. 8.2 Respeta el entorno y lo valora como un lugar común para la realización de actividades físico-deportivas 8.3. Analiza críticamente las actitudes y estilos de vida relacionados con el tratamiento del cuerpo, las actividades de ocio, la actividad física y el deporte en el contexto social actual.
9. Controlar las dificultades y los riesgos durante su participación en actividades físico-deportivas y artístico-expresivas, analizando las características de las mismas y las interacciones motrices que conllevan, y adoptando medidas preventivas y de seguridad en su desarrollo.	9.1. Identifica las características de las actividades físico-deportivas y artístico-expresivas propuestas que pueden suponer un elemento de riesgo para sí mismo o para los demás. 9.2. Describe los protocolos a seguir para activar los servicios de emergencia y de protección del entorno. 9.3. Adopta las medidas preventivas y de seguridad propias de las actividades desarrolladas durante el ciclo, teniendo especial cuidado con aquellas que se realizan en un entorno no estable.
10. Utilizar las Tecnologías de la Información y la Comunicación en el proceso de aprendizaje, para buscar, analizar y seleccionar información relevante, elaborando documentos propios, y haciendo exposiciones y argumentaciones de los mismos.	10.1. Utiliza las Tecnologías de la Información y la Comunicación para elaborar documentos digitales propios (texto, presentación, imagen, video, sonido,...), como resultado del proceso de búsqueda, análisis y selección de información relevante. 10.2. Expone y defiende trabajos elaborados sobre temas vigentes en el contexto social, relacionados con la actividad física o la corporalidad, utilizando recursos tecnológicos.

Educación Física. 4º ESO

Criterios de evaluación	Estándares de aprendizaje evaluables
1. Resolver situaciones motrices aplicando fundamentos técnicos en las actividades físico deportivas propuestas, con eficacia y precisión.	1.1. Ajusta la realización de las habilidades específicas a los requerimientos técnicos en las situaciones motrices individuales, preservando su seguridad y teniendo en cuenta sus propias características. 1.2. Ajusta la realización de las habilidades específicas a los condicionantes generados por los compañeros y los adversarios en las situaciones colectivas. 1.3. Adapta las técnicas de progresión o desplazamiento a los cambios del medio, priorizando la seguridad personal y colectiva.
2. Componer y presentar montajes individuales o colectivos, seleccionando y ajustando los elementos de la motricidad expresiva.	2.1. Elabora composiciones de carácter artístico-expresivo, seleccionando las técnicas más apropiadas para el objetivo previsto. 2.2. Ajusta sus acciones a la intencionalidad de los montajes artístico-expresivos, combinando los componentes espaciales, temporales y, en su caso, de interacción con los demás. 2.3. Colabora en el diseño y la realización de los montajes artístico expresivos, aportando y aceptando propuestas.
3. Resolver situaciones motrices de oposición, colaboración o colaboración-oposición, en las actividades físico deportivas propuestas, tomando la decisión más eficaz en función de los objetivos.	3.1. Aplica de forma oportuna y eficaz las estrategias específicas de las actividades de oposición, contrarrestando o anticipándose a las acciones del adversario. 3.2. Aplica de forma oportuna y eficaz las estrategias específicas de las actividades de cooperación, ajustando las acciones motrices a los factores presentes y a las intervenciones del resto de los participantes. 3.3. Aplica de forma oportuna y eficaz las estrategias específicas de las actividades de colaboración-oposición, intercambiando los diferentes papeles con continuidad, y persiguiendo el objetivo colectivo de obtener situaciones ventajosas sobre el equipo contrario. 3.4. Aplica soluciones variadas ante las situaciones planteadas, valorando las posibilidades de éxito de las mismas, y relacionándolas con otras situaciones. 3.5. Justifica las decisiones tomadas en la práctica de las diferentes actividades, reconociendo los procesos que están implicados en las mismas. 3.6. Argumenta estrategias o posibles soluciones para resolver problemas motores, valorando las características de cada participante y los factores presentes en el entorno.

Criterios de evaluación	Estándares de aprendizaje evaluables
4. Argumentar la relación entre los hábitos de vida y sus efectos sobre la condición física, aplicando los conocimientos sobre actividad física y salud.	4.1. Demuestra conocimientos sobre las características que deben reunir las actividades físicas con un enfoque saludable y los beneficios que aportan a la salud individual y colectiva. 4.2. Relaciona ejercicios de tonificación y flexibilización con la compensación de los efectos provocados por las actitudes posturales inadecuadas más frecuentes. 4.3. Relaciona hábitos como el sedentarismo, el consumo de tabaco y de bebidas alcohólicas con sus efectos en la condición física y la salud. 4.4. Valora las necesidades de alimentos y de hidratación para la realización de diferentes tipos de actividad física.
5. Mejorar o mantener los factores de la condición física, practicando actividades físico-deportivas adecuadas a su nivel e identificando las adaptaciones orgánicas y su relación con la salud.	5.1. Valora el grado de implicación de las diferentes capacidades físicas en la realización de los diferentes tipos de actividad física. 5.2. Practica de forma regular, sistemática y autónoma actividades físicas con el fin de mejorar las condiciones de salud y calidad de vida. 5.3. Aplica los procedimientos para integrar en los programas de actividad física la mejora de las capacidades físicas básicas, con una orientación saludable y en un nivel adecuado a sus posibilidades. 5.4. Valora su aptitud física en sus dimensiones anatómica, fisiológica y motriz, y relacionándolas con la salud.
6. Diseñar y realizar las fases de activación y recuperación en la práctica de actividad física considerando la intensidad de los esfuerzos.	6.1. Analiza la actividad física principal de la sesión para establecer las características que deben tener las fases de activación y de vuelta a la calma. 6.2. Selecciona los ejercicios o tareas de activación y de vuelta a la calma de una sesión, atendiendo a la intensidad o a la dificultad de las tareas de la parte principal. 6.3. Realiza ejercicios o actividades en las fases iniciales y finales de alguna sesión, de forma autónoma, acorde con su nivel de competencia motriz.
7. Colaborar en la planificación y en la organización de campeonatos o torneos deportivos, previendo los medios y las actuaciones necesarias para la celebración de los mismos y relacionando sus funciones con las del resto de implicados.	7.1. Asume las funciones encomendadas en la organización de actividades grupales. 7.2. Verifica que su colaboración en la planificación de actividades grupales se ha coordinado con las acciones del resto de las personas implicadas. 7.3. Presenta propuestas creativas de utilización de materiales y de planificación para utilizarlos en su práctica de manera autónoma.
8. Analizar críticamente el fenómeno deportivo discriminando los aspectos culturales, educativos, integradores y saludables de los que fomentan la violencia, la discriminación o la competitividad mal entendida.	8.1. Valora las actuaciones e intervenciones de los participantes en las actividades reconociendo los méritos y respetando los niveles de competencia motriz y otras diferencias. 8.2. Valora las diferentes actividades físicas distinguiendo las aportaciones que cada una tiene desde el punto de vista cultural, para el disfrute y el enriquecimiento personal y para la relación con los demás. 8.3. Mantiene una actitud crítica con los comportamientos antideportivos, tanto desde el papel de participante, como del de espectador.
9. Reconocer el impacto ambiental, económico y social de las actividades físicas y deportivas reflexionando sobre su repercusión en la forma de vida en el entorno.	9.1. Compara los efectos de las diferentes actividades físicas y deportivas en el entorno y los relaciona con la forma de vida en los mismos. 9.2. Relaciona las actividades físicas en la naturaleza con la salud y la calidad de vida. 9.3. Demuestra hábitos y actitudes de conservación y protección del medio ambiente.
10. Asumir la responsabilidad de la propia seguridad en la práctica de actividad física, teniendo en cuenta los factores inherentes a la actividad y previendo las consecuencias que pueden tener las actuaciones poco cuidadosas sobre la seguridad de los participantes.	10.1. Verifica las condiciones de práctica segura usando convenientemente el equipo personal y los materiales y espacios de práctica. 10.2. Identifica las lesiones más frecuentes derivadas de la práctica de actividad física. 10.3. Describe los protocolos que deben seguirse ante las lesiones, accidentes o situaciones de emergencia más frecuentes producidas durante la práctica de actividades físico deportivas.
11. Demostrar actitudes personales inherentes al trabajo en equipo, superando las inseguridades y apoyando a los demás ante la resolución de situaciones desconocidas.	11.1. Fundamenta sus puntos de vista o aportaciones en los trabajos de grupo y admite la posibilidad de cambio frente a otros argumentos válidos. 11.2. Valora y refuerza las aportaciones enriquecedoras de los compañeros o las compañeras en los trabajos en grupo.
12. Utilizar eficazmente las Tecnologías de la Información y la Comunicación en el proceso de aprendizaje, para buscar, seleccionar y valorar informaciones relacionadas con los contenidos del curso, comunicando los resultados y conclusiones en el soporte más adecuado.	12.1. Busca, procesa y analiza críticamente informaciones actuales sobre temáticas vinculadas a la actividad física y la corporalidad utilizando recursos tecnológicos. 12.2. Utiliza las Tecnologías de la Información y la Comunicación para profundizar sobre contenidos del curso, realizando valoraciones críticas y argumentando sus conclusiones. 12.3. Comunica y comparte información e ideas en los soportes y en entornos apropiados.

Appendix 9. Questionnaire correction template.

TEST: HIKING AS CONTENT GENERATOR		
1	What colours does a GR use?	White and red
		White and yellow
		White and green
2	Who practices hiking?	A trail
		A hiker
		A person
3	What animal does this horn belong to?	Fallow-deer
		Deer
		Wild pig
4	Which tree does this leaf belong to?	Holm oak
		Pine
		Gall oak
5	Which tree does this fruit belong to?	Boxwood
		Rosemary
		Juniper
6	What is this raptor?	Raven
		Eagle
		Vulture
7	Which stone is farther?	The right-hand stone
		The left-hand stone
		At the same distance
8	What is the name of the technique with which we go down a wall with a rope?	Hiking
		Zip line
		Rappelling
9	How would you measure a tree that you do not reach if you do not have a meter?	Using a stick
		Using the shadow of the tree
		Pythagoras theorem
10	Why do we sweat?	It is hot
		Increase body temperature
		Wearing too much clothes

Appendix 10. Applications related to the PANE (Motor Skill, 48).

NATURALEZA	PEGADAS APP	DESCRIPCIÓN
		App que permite identificar huellas de macromamíferos de la península Ibérica. Incluye breve descripción de los animales y su distribución en la Península.
	AVES DE ESPAÑA	DESCRIPCIÓN
		SEO/BirdLife y la Fundación BBVA han presentado la <i>Guía de las aves e itinerarios ornitológicos de España</i> , primera aplicación móvil para observar y conocer con detalle sobre el terreno las aves de España. Identificar un ave al escucharla, o cuando se la ve fugazmente en el campo, ya no será una habilidad exclusiva de los ornitólogos. Ni siquiera de los grandes aficionados.
	GOOGLE SKY MAP	DESCRIPCIÓN
		Google Sky Map se basa en tu localización para señalarte físicamente dónde se encuentra estrellas, constelaciones, planetas. Para usarlo deberás mover el teléfono y Google Sky Map irá actualizando la información de lo que ves en el firmamento. Google Sky Map saca provecho del GPS, el acelerómetro y la brújula del teléfono para conseguir la información más fiable posible. Como ejemplo, si apuntas al suelo desde España verás las estrellas del cielo australiano.
CARTOGRAFÍA	EL TIEMPO DE AEMET	DESCRIPCIÓN
		Si quieres conocer donde lloverá, si los vientos van a ser fuertes o si se prevén fenómenos meteorológicos adversos en tu municipio, las últimas predicciones y avisos oficiales de la Agencia Estatal de Meteorología (AEMET) están al alcance del móvil con esta sencilla aplicación. La aplicación identifica de manera automática el lugar donde está ubicado el dispositivo desde donde se consulta y muestra el tiempo previsto para esa localidad. Además, también es posible obtener la predicción en cualquier otro lugar de España a través de un sencillo y rápido buscador.
	NATURALEZA-MAGRAMA	DESCRIPCIÓN
		Esta aplicación ofrece servicios de visualización, consulta y análisis de información geográfica para particulares y profesionales del sector publicando cartografía relacionada con temas de la naturaleza, el medio natural, los espacios protegidos, los montes, red natura, cañadas, Lic y Zepa entre otros.

ORIENTACIÓN	GEOCACHING	DESCRIPCIÓN
		Esta aplicación trata de ir buscando "geocaché" (balizas, o también llamados tesoros) en diferentes zonas de la ciudad, parques, montañas, senderos, etc. y que no solo se encuentran en una ciudad, sino que se pueden encontrar distintas balizas en diferentes ciudades y países. Es una excelente herramienta para ser utilizada por los docentes con los estudiantes, pudiéndose descargar cada uno de ellos la App a su Smartphone trabajando de forma individual o por equipos.
	IORENTTEERING	DESCRIPCIÓN
SENDERISMO		iOrienteering permite que cualquiera con un teléfono inteligente para tratar el deporte. Todo lo que necesita es la App iOrienteering, un curso y un poco de tiempo. Solo tiene que elegir al iniciar y al final puede subir sus resultados a este sitio para comparar sus tiempos si lo desea. La aplicación básica es gratuita, la creación de un evento es gratuito, los códigos de barras QR utilizados como marcadores de control son de descarga gratuita / uso y los resultados de subida es gratuito (fotografía 2).
	ORUXMAPS	DESCRIPCIÓN
		Es una excelente App de mapas offline para realizar rutas ya existentes, que otros usuarios han realizado o incluso crearlas uno mismo teniendo la posibilidad de compartirlas en las redes sociales. Se puede realizar rutas de btt, de senderismo, de alpinismo, de cicloturista, etc... Es una excelente herramienta para el profesorado puesto que graba las rutas realizadas permitiendo posteriormente modificar ciertos aspectos. Además esta App permite reducir el riesgo ya que si un alumno se sale de la ruta indicada, tiene una alarma que le avisa.
	WIKILOC	DESCRIPCIÓN
		Crea tus propios tracks GPS de tus actividades y súbelos directamente a Wikiloc de la forma más fácil posible. Graba tus actividades al aire libre sobre un mapa, obtén estadísticas en tiempo real como velocidad, distancia recorrida y gráficas de elevación, toma fotos y puntos de interés a lo largo de la ruta y súbelo todo directamente a Wikiloc.
	CAMINO PILGRIM	DESCRIPCIÓN
		Con esta aplicación para Android, le ayuda a planificar y caminar a su peregrinación en el Camino de Santiago, en particular en el Camino Francés y el Camino de Finisterre.
CICLOTURISMO	SENDITUR	DESCRIPCIÓN
		Con esta aplicación podrás consultar las cimas más representativas, los municipios y una gran variedad de lugares de interés de toda España, cercanos a tu posición, tales como castillos, monumentos, lagunas, refugios... y muchos más.
	NAVIKI	DESCRIPCIÓN
CICLOTURISMO		App diseñada específicamente para el ciclismo europeo, pensada tanto para usarla en tiempo de ocio como para el uso de transporte diario. Permite planificar, guardar, compartir rutas e incluso averiguar el camino más corto en bici entre dos puntos. Esta herramienta puede facilitar al docente el realizar una unidad didáctica de btt, o incluso promover el uso de la bicicleta para acudir al centro educativo.

SURF	MAGIC SEA WEED	DESCRIPCIÓN
		Es una App para usarla en deportes que se practican en el medio acuático, en mar abierto. Está especializada para los practicantes de Surf puesto que especifica los diferentes lugares del mundo donde se generan grandes olas. Los docentes pueden consultar esta aplicación para ver el estado del tiempo, la dirección del viento para consultar si la condición meteorológica es adecuada para realizar deportes de vela, piragüismo, etc.
ESCALADA	EN LA VERTICAL	DESCRIPCIÓN
		Es un recurso creado colaborativamente por una comunidad de escaladores. Cualquier usuario registrado puede crear, editar y descargar información. Esta App sirve de ayuda para explorar y descubrir nuevas zonas donde practicar escalada. Facilita el realizar una unidad didáctica de trepa y escalada en el aula, para posteriormente mostrársela a aquellos estudiantes que quieran continuar introduciéndose en este deporte.
	ZONAS DE ESCALADA	DESCRIPCIÓN
		La aplicación Zonas de Escalada acumula una impresionante base de datos a la que se puede acceder vía web o a través de tu smartphone. Con seis menús disponibles, podrás acceder y descargarte croquis, además de conocer información sobre puntos de interés y zonas de escalada con fotos, videos y enlaces.
	CLIMBING APP	DESCRIPCIÓN
		Climbing app es una aplicación pensada para todos los amantes de la escalada. En ella podrás encontrar reseñas detalladas así como también aproximaciones en coche y a pie hasta los sectores, parkings y paredes. Climbing app cuenta con un buscador diseñado para encontrar sectores, paredes y vías de manera fácil y rápida, evitando que cargues con una montaña de libros de reseñas. La base de datos de Climbing app es dinámica y completamente actualizable. Con la ayuda de todos podremos crear la base de datos de escalada más precisa y completa nunca antes vista.
DESCENSO DE CAÑONES	CANYONING APP	DESCRIPCIÓN
		Es una App de descensos de barrancos. Describe el barranco que estamos buscando con una excelente ficha técnica, la posición GPS, los puntos de acceso y retorno para ser eficientes en tiempo y seguridad. Es una herramienta muy completa para que los docentes den un paso más una vez impartidos contenidos de escalada, cabuyería, rapel.
CABUYERÍA	MANUAL DE NUDOS	DESCRIPCIÓN
		Manual de Nudos es una herramienta que te facilita gran cantidad de nudos de montaña, marineros, cotidianos y de corbata. Es una excelente App que los docentes pueden usar para formar a los discentes en contenidos de cabuyería. De esta forma los estudiantes pueden practicar en casa.
EMERGENCIAS	ALPIFY	DESCRIPCIÓN
		Alpify es una App de emergencias que te conecta de manera más rápida y efectiva con los servicios 112/911. Tiene 3 funcionalidades principales: 1) Estar localizable en caso de desaparición por los equipos de emergencias. 2) Poder recibir mensajes relativos a la seguridad. 3) Poder mandar una señal de emergencia mandando la posición GPS junto a otros parámetros vitales para agilizar el rescate.
	MYUTM	DESCRIPCIÓN
		MyUTM es una App no tanto para emergencias, pero si para dar lugar de la posición en la que te encuentras. Te permite ver las coordenadas de latitud, longitud, altura y las coordenadas UTM de una forma bastante precisa. Dos de los aspectos que más nos gustan de esta aplicación, es que dispone de una posibilidad de ver tu localización en un mapa, y sobre todo, de disponer de la posibilidad de mandar de forma muy rápida, un correo electrónico a quien tú quieras con tus datos UTM de localización.