

## The three-axes model of planning in physical education El modelo de planificación de tres ejes en Educación Física

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**Abstract.** The high complexity of planning Physical Education is due to the great quantity of factors that influence its process. Consequently, many doubts appear in the decision-making process of any formational stage of Physical Education teachers. There is a lack of theoretical-practical tools that help teachers to be their own constructors of their curriculum by helping them to design their own proposals, instead of using proposals made by others. The main purpose of this study was to provide Physical Education teachers a theoretical and practical framework, which will guide them in the decisional making process during planning, in order to include in their teaching all the influential factors that need to be taken into account. The three-axes model of planning is discussed as a guide for planning Physical Education, helping teachers through practical recommendations and proposing strategies in each axis in order to prepare an effective Physical Education planning.

**Keywords:** planning physical education, program, decision-making process, physical educators, physical education teachers.

**Resumen.** La alta complejidad de la planificación de la Educación Física radica en la gran cantidad de factores que influyen en su proceso. Debido a ello, aparecen numerosas dudas en el proceso de toma de decisiones y en cualquier etapa de formación del docente de Educación Física. En determinados aspectos de la enseñanza como la planificación, existe una falta de herramientas teórico-prácticas que ayuden a los profesores a ser constructores de sus propios currículos, que les ayuden a diseñar sus propias propuestas curriculares y evitar así el uso descontextualizado de propuestas hechas por terceros. El principal propósito de este artículo es proporcionar a los profesores de Educación Física un marco teórico y práctico sobre el que basar y guiar sus decisiones de planificación cuando estén preparando sus currículos específicos, incluyendo así todos los factores influyentes que necesitan tener en cuenta en su enseñanza de la Educación Física. El modelo de tres ejes de la planificación es discutido como una guía para planificar la Educación Física, una ayuda de profesores a través de recomendaciones prácticas, y además propone estrategias en cada eje del modelo para preparar un plan efectivo de Educación Física.

**Palabras clave:** Planificación de la Educación Física, programación, toma de decisiones, educadores físicos, profesores de Educación Física.

### Introduction

Planning is a complex task for Physical Education (PE) teachers that can cause doubts and great confusion among novice (Sáenz-López, Almagro, & Ibáñez, 2011) and experienced teachers alike (Viciano & Zabala, 2004). Many factors influence in the process of planning, and taking all of them into account at the same time during the decision-making process is a challenge for teachers, especially when they are inexperienced or have a short experience in teaching PE (Viciano & Mayorga-Vega, 2013a).

Even the doubts that teachers have around the planning process can increase after an intervention period, caused by the complexity of the reality in the teaching context and the difficulty of the teacher's intervention. In this line, Viciano and Mayorga-Vega (2013a) showed that pre-service PE teachers found more difficulties in PE planning after their internship in a secondary school, due to the number and the nature of the changes they needed to make during the implementation of their initial planning. This fact demonstrates that the intervention period of teaching supposes a critical phase for PE teachers, as previous studies have demonstrated (Çakmak, 2010, 2013). Moreover, the particularities of this subject; such as the heterogeneous level of the students' physical fitness, the open character of the classroom (e.g., gym, outdoor multisport court, nature, public square), or the informal organizational system increase the necessity of a further orientation and practice in the planning phase.

According to the recommendations of the national standards for PE, adapting these standards to the context of the educational centre and students, progressing with the objectives toward the complexity of the subject, and trying to apply the learning to the students' lives making them competent, are the main purposes of educational planning in any country (e.g., American Association of Health, Physical Education, Recreation and Dance, 2014; Spanish Ministry of Education, Culture and Sport, 2015).

There are many proposals in literature that try to guide PE teachers in planning different contents, proposing particular teaching units, several kinds of lessons, integrating different curricular contents, or even

proposing multiple tasks oriented to a particular matter of PE (Fey, 2011; Redmon, Foran, & Dwyer, 2010; Salvador, Chiva, & Fazio, 2016). However, all of them are centered on specific learning, and particular progressions that could help teachers in choosing several tasks, or even complete lessons in order to be directly delivered in their teaching, but there are no a general or integral theoretical frameworks for planning that allow teachers to plan their PE applied to their own context following the appropriate criteria. In fact, despite that the literature in teaching with regard to better practices is increasing, the reality is that a great number of planned PE programs are in disarray (Bulger & Housner, 2009).

An example of this disorder is the trend called «cover the curriculum» developed by teachers when planning (Siedentop & Tanenhill, 2000). This idea is based on the fact that teachers divide their annual time in multiple periods of teaching purely based on several PE contents, most of the times in a senseless global way. The annual plan is usually divided in short periods of time (teaching units) in order to work a particular number of contents, instead of being based on the educational objective and providing them the needed number of sessions to achieve those objectives. Moreover, the students' relational learning between PE matters does not occur due to the lack of coherence in the whole planning and the isolated learning that entails the short teaching units programmed throughout the scholar year (Viciano & Mayorga-Vega, 2016; Viciano, Mayorga-Vega, & Merino-Marban, 2014).

Therefore, it is necessary to provide good solutions for both teachers and teacher educators, which facilitate organizing the PE planning, and consequently, the PE delivered at schools. Although several contributions have developed some orientations toward PE planning and intervention (Bulger & Housner, 2009; Liersch et al., 2011), unfortunately to our knowledge, there are no comprehensive views of planning that combine, in a holistic perspective, all the influential factors on the planning decision-making process.

### Background

On one hand, some previous contributions in literature have provided a guide to PE teachers for planning in a particular way, but from a general educational perspective. Thus, the three axes of the presented model (below) have been dealt with independently by different authors and from the general education perspective. For instance, the concept of «alignment» has already been mentioned and applied to a micro context

(relationship between educational objectives, delivered contents, assessment, and the standards) or to a macro context (which refers to a large scale perspective where the curriculum, instructional practices, and assessments are aligned) (Squires, 2009). González Luccini (1991) also contributed to the progression of the objectives (in complexity) of any planning with the concept of «horizontal hierarchy», developed at the beginning of the 90's prior to the installation of the Spanish Educational Law (*Ley Ordenación General del Sistema Educativo, LOGSE*). Regarding the autonomy and the authenticity of the students' learning, Newmann, Marks, and Gamoran (1995) developed the «Authentic Pedagogy Theory», and even before that, McClelland (1973) founded the basis of the Competency-Based Education model. Both models established the connection between the classroom and the real life of students. Therefore, these three mentioned independent models are the main backgrounds of the three axes model of planning presented.

On the other hand, particular proposals have also been developed regarding the planning and methodology in PE. The more traditional perspective provided the concept of the teaching unit or unit of instruction, although it has been found as problematic in particular cases (see Viciana and Mayorga-Vega, 2016). The Project-Based Learning (PBL, Norman and Schmidt, 2016) is one of the more recent methodological models that is based on the ideas of engaging the students in an extended process of asking questions (challenging problems extracted from the real world), finding resources (searching and investigating), and reflection (the effectiveness of the students' inquiry is used by the teacher to produce criticism, revision and understanding). Another example is the Pedagogical Model for PE developed by Fernández-Río and Méndez-Giménez (2016), based on cooperative learning experiences. Undoubtedly many other examples could be mentioned, but none of them disagree with the three axes model of planning proposed in this manuscript.

All models mentioned above were developed independently and all of them could be classified in the proposed three axes model of planning. For instance, a particular PBL in PE could be developed with or without a proper connection to the superior levels of the curriculum, or could be applied with an inappropriate level of complexity (according to the students' educational level), this is, respecting or not the concept of 'alignment' or the «complexity progression», respectively (two of the axes of the model presented in this article). Therefore, the three axes model of planning in PE represents a superior conceptual level model regarding all these previous proposals (e.g., teaching units, PBL, cooperative learning, etc.), providing a new contribution to our field of PE. The three axes model of planning is not in contraposition of developing a PBL unit or any other kind of planning proposal. And finally, it provides a conceptual-practical framework in which all kinds of planning proposals can be situated or classified with appropriate planning criteria.

Consequently, the purpose of the present article is to develop a general model of planning, based on three main axes and their synergic relationship, which represent the main influential factors on PE planning. The present contribution provides teachers a theoretical and practical framework for reflection when designing their classes. PE teachers of any country could apply it in order to obtain a coherent development of

PE, a good alignment of instruction with the standards recommendations of their respective countries, and an enhancement of students' significant learning taking into account their necessities and the contexts in which they develop their learning.

### The Three-axis Model for Planning

The three-axis model of planning is based on three coordinates that can define any planning, as shown in Figure 1. These coordinates pretend to be a reflective guide for PE teachers, and to make them think about the main issues related to PE planning, that are, the concepts of alignment of instruction, the autonomy of the students, and the complexity of the contents and teaching programmed. Although any PE planning could be defined by a point regarding these axes, depending on the requirements of the country, community, centre, and the students, the planning should be situated in a particular range with regard to the meanings of the three axes. In the following sections, a brief development of each axis will be presented, highlighting their practical consequences and the importance of being situated closer or further regarding both poles. The interaction between the three axes (X, Y, and Z) should be taken into account by teachers when planning PE in a particular school setting in order to have a guarantee of efficacy and coherency with the educational level and the students' capacities they teach.

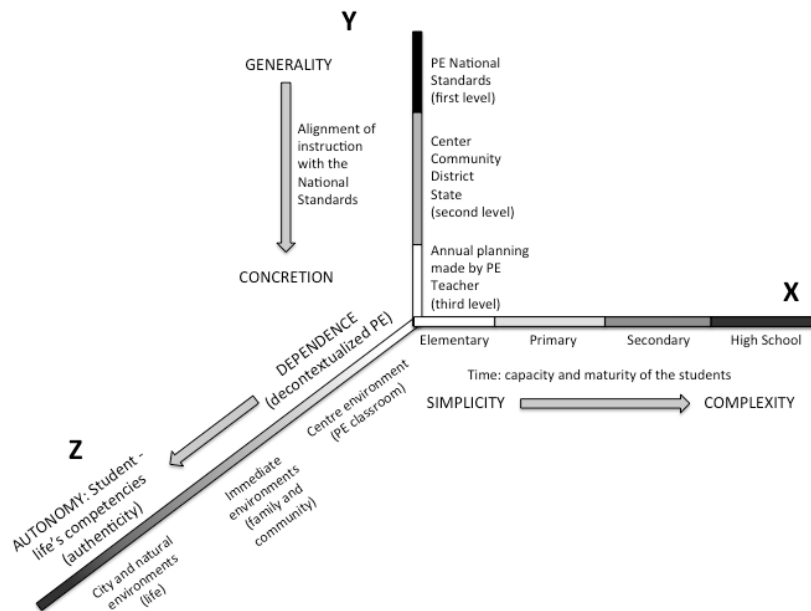


Figure 1. The three-axes model of planning in Physical Education

The ordinate axis (Y axis) represents the vertical hierarchy of the superior levels of the curriculum that teachers must attend to when planning their particular PE (Kullina & Krause, 2001; Viciana, 2002). The abscise axis (X axis), represents the progression from simplicity to complexity of the tasks, contents, and objectives proposed by the PE teachers, depending on the educational level and the nature of the contents. Although a part of this progression is determined by the standards in each educational stage, PE teachers also need to progress grade by grade and throughout a particular academic course (semester by semester), reflecting this concept and being coherent with the complexity of the educational objectives proposed in each moment. The applicate axis (axis Z) represents the authenticity of the objectives and performance in PE, and the expected situational learning of PE students (Rovegno, 2006), including the application of the learning to the students' life (Bulger & Housner, 2009). This last principle of planning is related to the achievement of competencies, from school to life, and entails some of the most important objectives in PE. Perhaps one of the most important objectives is providing the students with tools that allow them to practice physical activity along their lifespan (Ortega, Konstel,

Pasquali, Ruiz, Hurtig-Wennöf, Mäestu et al., 2013). It is confirmed that creating positive habits regarding physical activity among youth, has a positive influence on building a healthy life model (Ortega, Ruiz, Castillo, & Sjöström, 2008). Another related example with the application of learning to the student's life is the use of the environment that surrounds the educational centre in order to provide students authentic performances. It enables students to apply their knowledge to their particular surrounding area (e.g., their homes and neighbourhoods).

In the next headings a set of questions will be exposed for the three axes in order to orient the teachers' reflection when planning PE. Although the explanation of each axis is developed separately, it is obvious that the three have a strong relationship as shown in previous contributions (Mavrek, Pieters, Peterson-Pressler, Bentley, & Cameron, 2011). In a final section of each subheading, a Table summarizes examples of possible teachers' strategies explained previously.

### *Curriculum Alignment. From the Standards Guidelines to the Classroom Practices in Physical Education*

The process of planning requires PE teachers to respect the organization of the objectives into a hierarchy, which follows the criterion from generalization to specification. This concept of an «alignment» of instruction with standards (national or state) is proposed in order to organize the learning according to the standards elaborated by each government, which is a guarantee of the adequacy of the planning to the society's demands.

These standards represent the most general level of requirements that our educational law reflects as important goals to achieve. Teachers need to read, analyze, and understand the message of these standards from a practical point of view, in order to apply them to their PE classes. Many times it occurs that teachers do not understand comprehensively the message of the national standards (or syllabus, or other government documents regarding pedagogical characteristics of the PE subject) in terms of assessment, tasks construction, or implementation (Redelius & Hay, 2012). Thus, the first general recommendation is to do an in-depth analysis of the government's requirements in our subject in order to start the planning process in a good direction (Viciana & Mayorga-Vega, 2013b).

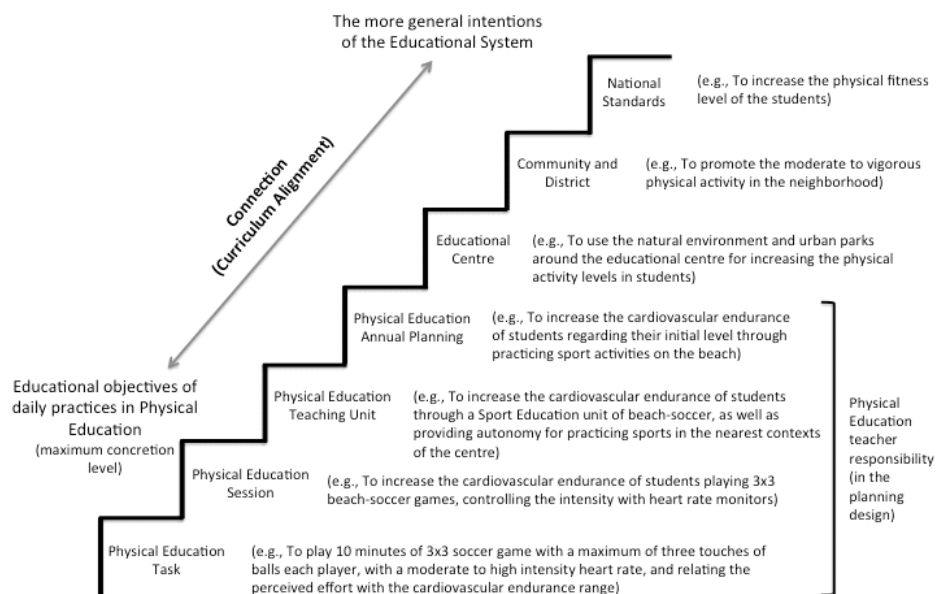
Analyzing the number of objectives and the nature of the verbs used [conceptual (to know), procedural (to know how to do), or attitudinal (to know how to be)] in the standards, and comparing the sequence of all the components of the curriculum throughout the educational stages or academic courses could be good strategies to analyze the real meaning of the national curriculum in order to deduce its more practical guidelines. Additionally, (counting the number of times each PE content appears (taking that frequency as the importance of each content for PE teaching), and the sense in which they appear, readers can deduce the message of the official documents in a more practical manner. This could be done checking previous studies on the topic such as Julián, Abarca-Sos, Zaragoza and Aibar (2016), Viciana, Salinas and Cocca (2007), or Viciana and Mayorga-Vega (2013).

The second level in the curriculum alignment is represented by the district and community where the centre is located. The maximum representational organism of the educational centre (e.g., the scholar council in Spain) should be in charge of adapting the standards to the

educational community context, and teachers need to apply its recommendations to their planning. In this process, teachers, centre staff, as well as students and parents, need to make suggestions to the standards, giving priority to those that are more related to the students and to the community concerns (e.g., to achieve healthy levels of physical activity and fitness, to foster social harmony and respect to others, to develop a second or foreign language, or to promote the use of technologies in students), as well as make suggestions and strategies to implement their priorities in a practical manner. At this level, teachers should propose practical strategies applied to PE in order to make the centre and community intentions real.

Finally, at the third level, teachers need to include in their PE planning the strategies agreed in the scholar council focused on a class group, making possible the particular purposes of the community and the more general intentions of the educational system within their classes.

In this way, we can talk about the alignment process like stairs that we can go up or down, connecting the daily practice in PE classes with the general intentions of the national standards, going through the community and centre (see Figure 2). Every task has its own objective that contributes to the whole session's purposes, and every session is inserted in a teaching unit that covers them, together with other teaching units that are the components of the strategy for reaching the academic year's goals. In this way, every structure of planning should be able to be inserted in the next structure, which progressively embraces the aim in a more general intention until the consecution of the national standards.



**Figure 2.** Connecting the more general intentions of the educational system with Physical Education practices

All the above-mentioned explanations of this Y-axis entail respecting the recommendations of the national curriculum and standards, as well as the centre and community strategies. But, how can I reflect this connection within my PE planning and intervention? Have I been able to make this operative in my classroom?

Firstly, the educational objectives proposed in the PE planning (third level of the curriculum alignment) should insert keys of the strategies suggested by the first and second levels of the alignment (centre and national curriculum). The standards could promote the physical fitness of the students, for instance, and the centre could recommend the use of its urban or natural environment such as a nearby beach or forest. Then, teachers should pursue to implement those particular recommendations made by the superior levels of the curriculum in their PE sessions, and in the educational objective is where they need to be reflected. Instead of formulating simple and general objectives like «increasing the cardiorespiratory fitness of the students» (which is more close to

standards than to practical guides for teaching) teachers should include some indications of their intentions for teaching such as «increasing the cardiorespiratory fitness of students through pre-sports games developed in natural environments». The next steps consist of selecting suitable contents, implementing appropriate styles of teaching, and motivating students during the intervention phase.

The following Table 1 summarizes the main suggested recommendations for this curriculum alignment axis, and some examples of them.

Table 1. Summary of the main suggestions for teachers within the ordinate axis (the vertical curriculum in alignment with the standards)

Goal	Strategies for an effective planning	Examples
<i>Regarding the national standards</i>		
To understand clearly the main message of the official documents, and to think about practical conclusions and strategies for intervention should be the teacher role at this initial moment of the planning.	To read comprehensively and analyse the text. For instance, the educational objectives reflected in official documents is crucial, as well as the importance given to the PE contents and methodologies. The frequency of appearances of those concepts is an indicator of the importance given by the curriculum within the PE subject.	The number of appearances regarding the "Health" in the Spanish official documents increased, for instance, from LOGSE (72 times) to LOE (95 times) laws in Spain. Then, good strategies for planning PE could be to address the health of students from a multi-perspective point of view (see Viciano, Salinas, & Cocca, 2007; Viciano & Mayorga-Vega, 2013). New analyses of the LOMCE are needed.
<i>Regarding the curriculum of the educational centre</i>		
To prioritize the national curriculum guidelines according to the centre and students' characteristics, and provide some methodological guidelines for teaching.	To participate with the educative community in designing the finalities and strategies of the educational centre toward PE planning (overweight students could be a priority for an educational centre to solve).	The educational centre could propose collaborations with students' families in order to increase the physical activity levels or improve the distribution and quality of the food for students.
<i>Regarding the PE annual planning</i>		
To reflect in the annual planning all of the centre strategies and prioritizations of the national standards according to the characteristics of the group of the students.	To ensure that all our aims are more specified (with higher concretion) than the national standards and the centre finalities. We can use several strategies to concretize the aims (e.g., with methodological clarifications, with references to particular physical environments, or naming the devices and implements to use). To make possible and viable all the strategies in practical teaching units throughout the annual planning.	Annual planning aim: "To develop collaboration activities with students' families in order to decrease the weight of overweight students". To design collaborations such as sending monthly informational triptychs to the family in order to improve the breakfast, lunch and dinner of the students, or proposing physical family-group activities for the weekends to increase the physical activity level, are good examples of strategies to implement in planning PE.

Note. LOE = Ley Orgánica de Educación [Fundamental Law of Education of Spain (2006)]; LOGSE = Ley de Ordenación General del Sistema Educativo [Fundamental and General Law of the Educational System of Spain (1995)]; LOMCE = Ley Orgánica de Mejora de la Calidad Educativa [Fundamental Law of Improvement of Quality Education] PE = Physical Education.

### ***From the simplicity to complexity in Physical Education. The horizontal progression and the maintenance of learning***

Based on the training principle of progression (Wilmore & Costill, 2005), planning in PE should increase the level of student's requirements year-by-year and educational stage by educational stage. The national curriculum of most countries establishes this progression through the general recommendations made in each educational stage. Thus, following these recommendations it is assured to a certain extent that the X and Y axes of the model are respected. On one hand, to follow the national standards and guidelines of the educational level that teachers are planning for is translated into being aligned with the superior level of the curriculum (national level). And on the other hand, to respect the guidelines of a particular educational stage or a particular academic course by teachers supposes a need to be situated in a correct level of complexity, due to the previous and established progression made by the national curriculum. Nevertheless, PE teachers need to configure their own educational objectives progressing by using verbs (actions that students need to achieve in the future) and designing progressively more complex contents for all students. This progression is referred to as the three aspects of learning in PE (physical, cognitive, and attitudinal): first, the physical implications need to augment as students increase their physical fitness and their capacity to make the physical effort; second, the cognitive learning also needs to be more complex when students allow it, increasing their cognitive relationship between PE concepts; and third, the attitudinal progression should also increase as students have more capacity of being responsible, respecting the rules of play, respecting others, and being critical with the learning they are experiencing.

How can teachers manipulate the level of complexity of their planning regarding the educational objectives in order to adequate the future students' learning? Due to teachers' need to reflect this progression in their PE planning, educational objectives being their main element, it is crucial to incorporate a progressive variety of verbs when designing these objectives. The selection of these verbs depends on the complexity of the action requested of the students. Many times, there are no differences between the verbs used by teachers in educational objectives for early and advances stages. Therefore, using the classical authors' classifications for guiding this process is a good practice in every learning domain: (a) cognitive (Bloom, 1956); (b) affective (Krathwol, Bloom, & Masia, 1973); or (c) psychomotor (Simpson, 1972). Viciano (2002) also provides a table in which a list of verbs for these three domains appears in order to guide teachers in designing a variety of educational objectives (e.g., know, distinguish, apply, relate, deduce, synthesize, or

analyse in the cognitive domain; practise, perform, perfect, look for, investigate, or create regarding the motor domain; and respect, be aware, be sensitive, take into account, or value in regard to the affective domain). Manipulating the content of the objective in order to increase its complexity is another strategy for reflecting the progression in the program (e.g., practice the spike in volleyball, or practice the 2-0-4 tactic system in volleyball defence), as well as other components of the objective like an evaluation criterion (e.g., run 1 mile in the Cooper test, or run 1.5 miles in the Cooper test).

Finally, maintaining the students' learning achieved across the academic year is also an important element of this axis. There is a wide spread trend among PE teachers that after an application of a particular teaching unit they change their teaching to a new learning period (normally, due to the great number of contents they need to develop during the academic year) forgetting to apply a reinforcement focused on stimulating again the learning achieved by the students. Viciano and Mayorga-Vega (2016) developed an innovative model of teaching unit for PE called «reinforced», in which they exposed the complexity of determining a particular number of sessions in a teaching unit in order to achieve complex objectives in PE (e.g., increase the students' physical fitness or acquire a motor learning in PE classes), and the problem of the detraining period after these kinds of interventions. The concept of intermittent reinforcements (Le Ny, 1980) arises as a practical solution based on the principle of training stimuli continuity (Verkhoshansky & Verkhoshansky, 2011). Some previous research has shown the effectiveness of this intermittent reinforcement applied to physical fitness in the PE setting (Viciano, Mayorga-Vega, & Cocca, 2013). Mayorga-Vega, Viciano, and Cocca (2013) verified that after four weeks of a detraining period, a reinforcement period of four sessions applied intermittently (one day of the week with a reinforcing methodology and the other day of the week focused in other domain) was effective to maintain both the cardiorespiratory and muscular endurance gains achieved in a prior training program developed in primary schoolchildren. However, determining the detraining period in which the students' gains attained revert back to their baseline is needed in this research line (regarding the strength, flexibility and cardiovascular components of the physical fitness, as well as in the motor skill domain).

Due to the low frequency of practices in the PE curriculum, extracurricular time is also a period that needs to be considered in order to attain and maintain complex PE objectives. This supposes the union of the Y axis with the next one (Z axis) that uses the extracurricular period and participation in physical and sport activities as a connection between the learning and the daily life of the students (Pulido, Sánchez-Oliva, Sánchez-Miguel, González-Ponce, & García-Calvo, 2016; Thorburn, Jess, & Atencio, 2009).

The following Table 2 summarizes the main recommendations suggested for this horizontal progression (complexity) in PE planning.

Perhaps, one of the more important issues to plan in PE is the students' motor capacity. The work of Sánchez-Bañuelos (1984) could help to plan the motor competency progressively, using his classification of the phases of any motor task (i.e., perception, decision-

Table 2.

Summary of the main suggestions for teachers within the abscise axis (the horizontal progression of complexity)

Goal	Strategies	Examples
To determine the level of complexity belonging to the focused academic course that we are planning for	To analyse the national standards according to the year or educational stage defined by the government, and analyse its complexity regarding other educational stages To verify the level of the students (maturity, cognitive, physical fitness, emotional, etc.) asking previous teachers in charge of them and doing an initial evaluation	Regarding the warm-up, for instance, the 1 <sup>st</sup> course of secondary school in the Spanish educational law requires to know how important the warm-up is for health, and the components it has; in the 2 <sup>nd</sup> course the main objective is to perform a specific warm-up adapted to the subsequent activity to be performed; the 3 <sup>rd</sup> course deals with the starting point of participation of students in designing their own warm-up; and the 4 <sup>th</sup> course pursues to perform autonomous warm-up by students
To reflect the appropriate complexity of students' learning in our planning	To use classical taxonomies and tables of verbs suggested by other authors in order to design objectives with the appropriate complexity in the annual PE planning  In order to plan the complexity progression of motor competency, the references of Sánchez-Bañuelos (1984), a classical reference regarding the progression and phases of the motor tasks (perception, decision, and execution), Larraz (2009) and López-Pastor et al. (2016), are recommended	At the 4 <sup>th</sup> grade of secondary level in the Spanish educational law, the autonomy of the students in all aspects is requested. Therefore, using verbs such as to know, participate, collaborate, propose, create, or assess are good options for teachers to design educational objectives progressively. Manipulating the number of stimuli in the perception phase of a motor task could increase the complexity of a task regarding team sport contents (e.g., increasing the number of opponents and teammates). Moreover, taking into account a particular classification of motor competencies could help PE teachers to progress in their annual planning (e.g., Larraz, 2009; López-Pastor, 2016)
To ensure the maintenance of the gains attained in physical fitness and tactical and technical learning in sports	To stimulate the learning achieved periodically with subsequent teaching units distributed along the academic year To verify the maintaining of the gains attained in a first teaching unit with several assessments	After a cardiovascular endurance teaching unit of 14 sessions, Mayorga-Vega, Viciana, and Cocca (2013), applied an intermittent reinforcement of four sessions in order to maintain the gain achieved with primary students in PE

Note. PE = Physical Education.

making, and execution). In order to provide PE teachers a useful tool for this progression, the mentioned author described a series of factors in each of the phases that any teacher could manipulate when designing a particular task. For instance, eight factors are described by Sánchez-Bañuelos (1984) for the decision-making phase of any motor task (i.e., number of decisions, number of alternatives in the task, number of alternative motor proposals in each decision, velocity required for the decision, level of uncertainty, risk level, sequential order of the decisions, and number of elements to remember). A second good example of the classification of motor competency could be the work developed by Larraz (2009). Six motor domains are described by the mentioned author in order to progress in the complexity of motor capacity (i.e., domain 1: motor situations without uncertainty and without interaction with mates nor adversaries; domain 2: motor situations with one-on-one confrontations; domain 3: cooperative situations; domain 4: collaboration and opposition situations; domain 5: motor situations with environmental uncertainty, such as physical activities in the natural environment; and domain 6: motor situations with artistic/rhythm expressive finalities). A practical application of this last classification of Larraz (2009) was developed in the work of López-Pastor et al (2016) for Elementary Education. These two examples represent good opportunities for PE teachers in order to progress in this X axis (complexity) in motor competency, which is one of the more important objectives in the PE curriculum.

#### ***From teacher dependence to students' autonomy in Physical Education. The development of life's competencies***

Several concepts are related to this axis: (a) the authenticity of the students' practices (Newman, Marks, & Gamoran, 1995); (b) situated perspectives of learning and teaching (Lave & Wenger, 1991); and (c) the alternation principle (Miklos, 1999), which supposes transferring the competencies achieved in the classroom to the student's life.

The adjective «*authentic*» comes from the authentic pedagogy theory of Newmann, Marks, and Gamoran (1995) and has been assigned to learning outcomes where skill, knowledge, or social strategy will be used by the students in contextual performances. The characteristics of meaningful learning (connection to previous knowledge), students' engagement and analysis (psychological involvement of students in their learning), and connection to the world (application of the information and performance to other real sport and physical activity contexts in the students' life) are related to this authentic pedagogy theory. What students are really into, should be the main focus of our teaching, making it possible to practice and to achieve within the PE classes. This means being cognisant of the students' lives when planning, and implementing tasks clearly directed toward their preferences and interests. This entails being open to collaborate with sports community organizations and families, and taking into account the opportunities that students have to practice physical activity in their neighbourhood. Therefore, authentic programs in PE need to address situational performances in the students' life, fostering meaningful and situated learning and linking the subject matter and students' motivation in their

daily lives. In this line, the guiding and tutorial role is a crucial function of teachers (e.g., making a list of opportunities for maintaining active students, preparing a timetable, or accessing sports prospects in their neighbourhood) in order to achieve the desirable levels of active leisure time in students.

Situated learning is then intimately connected to the concepts of authenticity, to the school-community partnership programs (Van Acker, et al., 2011), and to the theory of communities of practice (Wenger, 1998; Whitley, Forneris, & Barker, 2014). Providing a real context to students for implementing their learning in PE classes is the main teaching characteristic that guides this principle. It is not only to connect the PE learning with the context where students could apply it, but also to create a common interest in the group of students in order to make physical activities in groups possible in their community, united for the same motivation, and created in PE classes by teachers. Experiences such as «Curriculum for Excellence» in Scotland (Thorburn, Jess, & Atencio, 2009) or «Easy Street» in the United States (Bulger & Housner, 2009) reflect this concern regarding the use of extra-curricular time for learning and practicing physical activity applied to the students' lives. The concept of «learning by doing» (Goh, 1997) where teaching is seen as a way to develop understanding and apply thinking skills, creative problem solving, and to be a process centred on decision-making, is a good example of this axis perspective. The role of teachers is to provide performances in real contexts, making students understand the relationship between the PE classes and their daily environment. In fact, previous research in the Spanish context reveals that PE teachers recognize the contribution of PE to students' social life as the main developed competency in our subject (Gutiérrez-Díaz del Campo, García-López, Pastor-Vicedo, Romo-Pérez, Eirín-Nemíña, Fernández-Bustos, 2017).

The alternation principle of learning (Miklos, 1999) consists of alternating the teaching provided in the classroom toward the student's life. Every teaching unit that teachers deliver in PE should have a transference that allows students to apply the learning to their lives. Teaching competencies, which could promote the autonomy of students, is based on this principle and consists of delivering formal classes alternately with those delivered in natural and urban environments (e.g., save one or two classes at the end of a teaching unit in order to apply the formal learning acquired in PE to the daily activities developed outside of the school).

Sometimes, respecting the first axis principles (alignment instruction with the standards) entails promoting the autonomy of students, making them able to manage their daily physical activities (Kulinna & Krause, 2001). Some countries address this autonomy of students in their standards, as a way to ensure the effectiveness of PE programs, and making students able to practice physical activity in their leisure time in a correct way. Governments, moved by the failure of the previous PE programs and implementations, want to include the lifelong perspective in quality approaches to PE. This is an important change that PE teachers need to interiorize in their classes. It starts with the teacher thinking as a student, observing and asking them about their motivation

**Table 3.**  
Summary of the main suggestions for teachers within the applicative axis (the students' autonomy in Physical Education)

Goal	Strategies	Examples
Providing authentic activities to the students	Analysing the authentic context where the activities need to be applied, and designing tasks according to those situational learning.	To perform sports activities in an educational competition context (e.g., practicing spike in volleyball in 2x2 or 3x3 competitions, instead of in an analytic situation). To provide students enough tools for designing games. To promote students participation within public squares or sports pavilions allocated around the centre.
Applying the learning to the students' lives	Connecting the activities developed in PE classes to the life of the student and his daily motivation (e.g., transmit to the students the autonomy of the effort control through perceived exertion scales, using manual methods or technologies applied to heart rate control).	Saving applied sessions after a particular period of teaching (e.g., teaching unit or semester) through some activities developed outside of the school (e.g., to develop in a natural environment a session applying beach sports; how to use the urban equipment such as stairs, slopes or public benches for physical fitness; to control the heart rate manually when students performance daily physical activities). The use of pedagogical cases for students could help to achieve the connection between learning and real life situations and to contribute to preparing educated citizens through PE (Cloes, 2017).
Assessing the application of the PE learning achieved in the student's life	Including and organizing partnership collaborations with families in order to receive feedback of the transferred learning to the students' lives, and to make effective strategies without the presence of the teacher.	Collaborating with the student's family (through a register sheet, for instance) if he applies a correct body posture at home or the frequency of doing physical activity during the weekend.
Offering a good tutorial process	Giving sufficient and suitable information to the students to provide opportunities for continuing the physical activity in leisure time.	Providing information such as procedure to contact to sport clubs, informing about eventual organized sport activities, existing sport facilities and timetable, physical activities for the weekend, or group and community programs.
Enhancing psychological variables that mediate the physical activity performance	Taking into account the development of psychological variables that influence on the performance of physical activities is crucial during the PE classes.	Delivering positive feedback; providing suited challenges and group activities in order to increase the self-motivation and self-esteem.
Increasing students' autonomy	Applying appropriate styles of teaching.	Using reciprocal style, and microteaching in order to give a progressive autonomy to the students in their teaching-learning.

Note. PE = Physical Education.

in life, and connecting the PE goals with significant experiences for the students.

It is well known that the sport and physical activity levels in scholar ages are insufficient (Cocca, Luikkonen, Mayorga-Vega, & Viciano, 2014). However, Thorburn, Jess, and Atencio (2009) analysed several previous studies and detected three ingredients for successful programs in extra-curricular time for students: providing the needed tools for autonomy to the students, motivating them, and providing challenges. These three components should be present in the new and future intervention programs that are centred on positive habits and autonomous practices for students. Finally, in order to obtain positive results in consolidation of positive habits with physical education students, Ennis (2011) underlined the awareness of particular psychological variables that increase the physical self worth of the students (e.g., perceived competence or physical self-esteem), and assure the positive mediation fostering healthy and active lifestyles.

The following Table 3 summarizes the main recommendations suggested for achieving the students' autonomy in PE planning.

### Conclusions

The main purpose of this study was to provide PE teachers with a theoretical and practical framework, which will guide them in the decisional making process during planning, in order to include in their teaching all the influential factors that need to be taken into account. The concurrence of the strategies belonging to the three axes in PE planning have been presented in order to obtain subsequent effective teaching, and an increase of potential physical activity during and after school. Consequently, providing beginners and pre-service teachers with this planning structure could help them to plan in a correct way, assuring the alignment of instruction with the aims of the centre, community, and national standards; adjusting the teaching to the complexity of the educational stage and students' capacities; and providing a progressive autonomy to the students regarding physical activity practices in their daily life. The support given by the experiences, innovations and supervision of experienced teachers is crucial in carrying out these contents in PE for the beginning and novel teacher training process (Maxwell, 2010; McPhail & Tannehill, 2012).

Future lines should to be focused on the assessment of real PE planning in different educational levels (in-service teachers), analysing the adequacy of the programmed units of instruction according to the three axes of this presented model. This assessment could contribute to knowing if PE is being planning in accordance with the centre and standards in particular contexts, with an adequate complexity level, and with authentic objectives and experiences related to the students' life. It is also necessary to make a rubric evaluation tool previously to this evaluation.

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