

Original article. Analysis of the effect on high school students' motivation and attitudes following the application of the attitudinal style in Physical Education. Vol. 11, n.º 1; p. 1-27, January 2025.

<https://doi.org/10.17979/sportis.2025.11.1.11236>

Analysis of the effect on high school students' motivation and attitudes following the application of the attitudinal style in Physical Education

Análisis del efecto de la aplicación del estilo actitudinal en la motivación y las actitudes de los estudiantes de secundaria en Educación Física

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Cronograma editorial: Artículo recibido 21/02/2024 Aceptado: 16/07/2024 Publicado: 01/01/2025

<https://doi.org/10.17979/sportis.2025.11.1.11236>

Para citar este artículo utilice la siguiente referencia:

Álvarez-Sánchez, J.L., Salicetti-Fonseca, A., Hortigüela-Alcalá, D., Gutiérrez-García, C., & Pérez-Pueyo, A. (2025). Analysis of the effect on high School students' motivation and attitudes following the application of the Attitudinal Style in Physical Education. *Sportis Sci J*, 11(1), 1-27 <https://doi.org/10.17979/sportis.2025.11.1.11236>

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Contribución autores: Todos los autores contribuyeron de forma equitativa al trabajo.

Financiación: El estudio no obtuvo financiación.

Conflicto de interés: Los autores declaran no tener ningún tipo de conflicto

Aspectos éticos: El estudio declara los aspectos éticos.

Abstract

In this research, the effects of the Attitudinal Style emerging pedagogical model on the motivation and attitude levels in Physical Education of Secondary Education students during an academic course are analyzed. The method used was qualitative, employing focus group discussions and the diary of the teacher responsible for teaching the classes. A total of 56 students participated in the research (25 males and 31 females, aged between 15 and 17 years). Qualitative results indicate that students reported increased enjoyment and engagement in PE classes, as well as improved social interactions and a sense of competence. These findings suggest that the Attitudinal Style model not only enhances motivation and attitudes but also fosters a supportive and collaborative learning environment. The study's implications highlight the potential of this model to be adapted to various educational levels and cultural contexts, thereby broadening its impact on student motivation and attitude outcomes.

Keywords: attitudinal style, Physical Education, attitudes, motivation, adolescents.

Resumen

La presente investigación mide los efectos del modelo pedagógico emergente Estilo Actitudinal en los niveles de motivación y actitud hacia la Educación Física de estudiantes de Educación Secundaria a lo largo de un curso escolar. La metodología empleada fue de tipo cualitativo, mediante la aplicación de grupos de discusión focal y el uso de un diario digital del profesor encargado de dirigir las clases. Un total de 56 estudiantes participaron en el estudio (25 hombres y 31 mujeres, con edades comprendidas entre los 15 y 17 años). Los resultados cualitativos indican que los estudiantes reportaron un aumento en el disfrute y la participación en las clases de Educación Física, así como una mejora en las interacciones sociales y en la sensación de competencia. Estos hallazgos sugieren que el modelo Estilo Actitudinal no solo mejora la motivación y las actitudes, sino que también fomenta un entorno de aprendizaje colaborativo y de apoyo. Las implicaciones del estudio destacan el potencial de este modelo para ser adaptado a diversos niveles educativos y contextos culturales, ampliando así su impacto sobre la motivación y actitud de los estudiantes.

Palabras clave: estilo actitudinal, Educación Física, actitudes, motivación, adolescentes.

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Introduction

Comprehending the psychological and motivational mechanisms of students, both within and beyond the classroom environment, is essential for fostering universal student participation (Deci & Ryan, 1985). Such engagement in Physical Education (PE) classes is pivotal in enhancing their physical and mental health, and it positively influences their academic progression (Yazici et al., 2019). Moreover, PE classes typically facilitate a more robust interaction compared to other courses, thereby increasing student enjoyment (Uruç, 2023). In this context, recent studies underscore the significance of the social relationships that students establish with their peers as a key element in motivation (Méndez-Giménez et al., 2018). However, for many students, the memory of adverse experiences in school PE has been a factor that negatively impacts physical participation in adulthood (Gutiérrez, 2014). It appears that one of the keys to adherence to the practice of physical activity during adolescence lies in assisting them in finding enjoyment in it, such that this feeling of satisfaction facilitates their perseverance in the behavior (Lizandra & Verez, 2020).

Given this background, PE teachers assume a significant role in enhancing student engagement in the learning process through the implementation of effective pedagogical strategies (Szymkowiak et al., 2020). Consequently, it becomes imperative to consider the diverse influences of student attitudes and motivation on the learning process (Ferrer et al., 2022). The concept of attitude has traditionally been classified into three types: single-component, two-component, and three-component (Zhang et al., 2024). The three-component model is further divided into three categories: cognitive, affective, and behavioral attitudes. Cognitive attitude pertains to an individual's knowledge, ideas, and beliefs about their attitude towards an object. For instance, an individual's understanding of PE and sports class serves as an example of this attitude. Affective attitude refers to an individual's emotions related to their attitude towards an object.

According to Albarracín et al. (2019), the attitude depends on the goal, the subject, and the measurement situation, and may differ in specificity and generality. Therefore, it is of vital importance to conduct activities which will encourage students to develop a positive attitude towards PE and sports classes (Mutlu et al., 2021). On the

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other hand, students with negative attitudes towards PE and sports may encounter negative situations such as reluctance to participate in activities, low performance, and seeing the lesson as unimportant. On the other hand, students with positive attitudes have a high desire to participate in the lessons and a high performance, making it easier to achieve objectives of the course (Acinena, 1991).

When it comes to motivation toward physical activity, this is a widely studied topic both in general psychology and in sports psychology (Haerens et al., 2010). The self-determination theory (SDT) has been particularly influential in understanding motivation in the physical-sport context over the last few decades (Ryan & Deci, 2000). SDT describes various types of motivation (Kelso et al., 2020). These include amotivation, where an individual lacks the intent for behavior, external regulation (where activities are performed under the duress of external agents), introjected regulation (where actions are undertaken to evade internal pressures), identified regulation (where an individual exhibits high volition to act), integrated regulation (where activities are assimilated with personal values and interests), and autonomous motivation (where actions are driven by personal interests).

In this context, self-efficacy plays a crucial role. Self-efficacy refers to an individual's belief in their ability to perform specific tasks and achieve goals (Bandura, 1997). In PE, motor self-efficacy is closely related to students' motivation to participate in physical activities. Students with high motor self-efficacy tend to show greater intrinsic motivation and a higher intention to be physically active (Morales-Sánchez et al., 2024). Additionally, self-efficacy can influence students' perceptions of their competence and enjoyment in PE classes, which in turn can enhance their participation and performance (Fierro-Suero et al., 2023).

Nevertheless, many children present high amotivation levels (Aniszewski et al., 2019) making the teaching-learning process difficult (Ryan & Deci, 2020). This can be due to inappropriate learning models and less innovative learning packaging patterns, so that students are less enthusiastic about learning. (Syahidah et al., 2023). In this way, the development and adoption of pedagogical approaches in PE have had undergone global expansion (Casey & Kirk, 2021). In response to these challenges, educators and scholars worldwide have developed PMs to address the diverse needs of students in

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various educational contexts. These PMs, which have been progressively emerging and are also being explored in the Spanish context, are referred to as "emerging PMs" (Fernández-Río et al., 2016), as their expansion is not yet as significant.

One of the emerging PMs that are felt to be able to foster motivation and attitudes is the Attitudinal Style (AS) (Pérez-Pueyo, 2016).

Attitudinal Style as an emerging pedagogical model for enhancing motivation and attitudes in Physical Education

The AS is centered on attitudes as the core element of the teaching and learning process, with the primary goal of fostering greater motivation towards PE and enhancing learning (Pérez-Pueyo, 2016). Its longitudinal implementation in the classroom aims to increase levels of student motivation and attitude towards practice (Pérez-Pueyo, 2016). To achieve this, autonomy and student participation in the classroom are encouraged, along with improving social relationships and enhancing perceived competence and self-efficacy. All of this is fostered within a task-oriented climate where collaboration and cooperation are essential and commonplace in the learning process. In this context, the AS draws support from SDT which has been shown to positively influence autonomous motivation (intrinsic motivation, integrated regulation, and identified regulation) in the context of PE (Vasconcellos et al., 2020).

Regarding its application, the model doesn't focus solely on a motor dimension but on the comprehensive development of the five types of abilities as defined by Coll (1991). Among these, the work of the affective-emotional dimension (generation of positive emotions and experiences in students in the classroom) plays a leading role in the model. In this sense, Fierro-Suero et al. (2023) have shown the importance of including both motivation and emotions to understand the consequences of what happens in PE classes. This interrelation occurs within a complex system of co-regulation between students and teachers (Castillo et al., 2020). The session design addresses three components: intentional bodily activities, sequential organization towards attitudes, and final assemblies. However, the author doesn't perceive this design as rigid (Pérez-Pueyo, 2016). The model is based on five pillars: critical reflection by the teacher on educational practice, intentional work on motivational aspects to create

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positive experiences, using motor skills as a means, from a critical perspective regarding the more mechanistic view of PE, questioning demonstration as an essential resource in the classroom (Pérez-Pueyo, 2016). In this way, the teacher becomes a facilitator of learning, adapting educational practices to accommodate various learning paces and student characteristics.

In this context, the aim of this study was to ascertain whether the longitudinal application of the AS emerging PM over an academic year positively influenced the motivation and attitude levels of students in PE classes.

Materials and methods

Participants

In the study, a total of 56 students participated voluntarily, including 25 males and 31 females, aged between 15 and 17 years. They belonged to four natural groups from the 4th year of Secondary Education. All of them attended the same educational institution—an Obligatory Secondary Education Institute located in a town near the average geographical area of Spain—with a medium socio-economic level. The selection criteria included: (1) attendance of 90% or more in PE classes during the 1st or 2nd trimester, (2) active involvement in classes, and (3) submission of all materials and assessable products in the different worked didactic units (DU). Additionally, the inclusion criteria considered the age of the students and their educational level. Exclusion criteria included justified absences, health issues, or lack of informed consent.

Design

The present research is an exploratory study of a qualitative nature, utilizing focus group methodology and data recording in a digital teacher's notebook. A single PE teacher applied the AS model throughout an entire academic year. The teacher had prior experience of 4 years in Secondary Education, during which they systematically applied the AS in various DU. Additionally, the teacher had extensive prior training on this model and was also the author of several informative publications regarding its application in secondary education and the design of DU.

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Throughout the intervention program (see Table 1), a total of eight DU (2 sessions per week, 50' each) were carried out. These DU addressed the curricular aspects defined in the Spanish educational system, providing responses to different content areas: active and healthy living, organization and management of physical activity, problem-solving in motor situations, emotional self-regulation, social interaction in motor contexts, manifestations of motor culture, and sustainable and efficient interaction with the environment.

All DU adhered to the theoretical foundations of AS (Pérez-Pueyo, 2016). Furthermore, in the handball and CrossFit units, a hybridization with the PM Teaching Games for Understanding (TGfU) and the self-regulation model was carried out respectively. Hybridizing PMs involves extracting and integrating essential features from two models or using one model as a base and adding critical components from another model (Backman & Barker, 2020). In this way, the methodological pillars of TGfU (Harvey & Jarrett, 2014) and of the self-regulation model (Zimmermann & Kitsantas, 1997) were also followed.

Table 1

Intervention Program: Planning and Timing

Unit No. /Term	Content block	Content	Methodology
1/1	Emotional self-regulation social interaction in motor contexts	Physically Emotional Challenges	AS
2/1	Active and healthy living	Collective physical condition classes	
3/1		Injury prevention and first aid	
4/2		Diet and nutrition	
5/2	Problem-solving in motor situations	Handball	TGfU and AS
6/2	Manifestations of motor culture	Urban dance	AS
7/3	Organization and management of physical activity	CrossFit	Self-regulation and AS
8/3	Sustainable and efficient interaction with the environment	Obstacle running	AS

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Procedure

To obtain the information necessary for analyzing the established research objectives, eight focus group discussions were conducted. These focus group lasted one hour each. Four focus group were conducted at the end of the first trimester (one interview per natural group in December), and four interviews were conducted at the end of the second trimester (one interview per natural group in March). In all the discussion groups, 8 students participated, except in the fifth, sixth, and eighth groups, where 5, 5, and 6 students participated respectively.

The sessions were recorded for subsequent analysis and transcription. This qualitative approach allowed students to express their perceptions, viewpoints, and experiences during the first six months of class when the EA methodology was applied across all DU. The families of the participants were informed about the project, its objectives, as well as the confidentiality and anonymity treatment of the data. In this regard, authorization was required, and participants completed an informed consent questionnaire via Google Forms. Students were encouraged to respond sincerely and naturally throughout. Researchers moderated the interactions, ensuring that everyone answered before moving on to the next question (Del Rio-Roberts, 2011).

Additionally, in order to understand the perspective of the PE teacher responsible for PE classes, all session information was noted over a period of nine months in a digital notebook.

Instruments

In the research, different instruments were used. Regarding the focus group discussions, a battery of questions clearly related to the study objectives was designed and categorized into different blocks (see Tables 3 and 4). To do this, we used the perceived locus of causality scale in Physical Education (PLOC-2) (Ferriz et al., 2015) and the Physical Education Attitudes Questionnaire (CAEF) (Moreno et al., 2003), which measure motivation and attitude levels in PE students, respectively. Both tools have been validated in the Spanish context through previous studies that have demonstrated their reliability and validity. For example, the PLOC-2 has been adapted

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and validated in Spanish samples, showing adequate internal consistency and factorial validity (Trigueros et al., 2017).

Table 3

Script used to measure motivation in the focus group with students

Block 1. External and Introjected Regulation. Participation and Predisposition toward Tasks
How do you generally feel before starting Physical Education classes?
Have the ways in which PE classes have been conducted made you want to participate more or less? Why?
Has the PE teacher done anything that has increased your participation? What was it?
Have there been any activities that made you participate more actively? Why?
When a class ends, do you look forward to the next one? Why?
Block 2. Intrinsic Motivation and Identified Regulation. Volition to act, fears, Issues, personal interests and insecurities
Is there anything in PE class that causes you concern or insecurity? Could you explain why? Do these fears lead to less participation in class?
Has there been anything about the teacher's teaching style that made you feel uncomfortable or nervous? Could you provide an example? What about your classmates?
Which activities in class help you feel more secure and less worried?

Table 4

Script used to measure attitude in the focus group with students

Block 3. Student Attitudes in Practice
How would you describe your behavior, as well as that of your classmates, in physical education classes? What influences your attitudes and/or behaviours?
Do you believe that your attitude, along with that of your peers, can impact group achievement? In what way? Could you provide an example?
Do the activities you engage in during class help you feel more positive and work well with your classmates? Could you give an example?
Block 4. Social Cohesion Level

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Do you prefer working individually or in a group during class? Why? Do you think there are any advantages to group work? If so, what are they?

How would you assess the overall atmosphere and coexistence in your class? Why? What do you consider important for creating a more positive climate?

Block 5. Student's – teacher relationship

Do you believe that the PE teacher has a close relationship with the students? Why? What do you value most about the attitude of a PE teacher?

How does the teacher's attitude toward you and/or your classmates affect your participation in pe classes? Could you provide an example?

Do you feel comfortable discussing your difficulties or ideas in class with your pe teacher? Do you prefer to have these consultations individually or in a group? Why?

On the other hand, regarding the teacher's digital notebook, it was categorized into the same blocks used for the focus group discussions in order to collect the same information. Unlike the focus groups, data was collected throughout the academic year to assess the effects and conditions of AS in all the taught DU. The notebook also recorded the evolution of different natural groups, as well as a detailed description of the content covered in the DU.

Data Analysis

The first step involved transcribing the discussion group recording using the Good Tape tool, an AI-based automatic transcription software that accurately converts audio files to text. After the initial transcription, researchers carefully reviewed the text to ensure alignment with the audio recording. Finally, Nvivo 12 was used specifically for data coding.

Data encoding

Regarding the focus group discussions, the researchers conducted manual coding, coding each student individually, and categorizing text excerpts into different nodes based on the initially planned content blocks: (1) External regulation and introjected regulation, (2) intrinsic motivation and identified regulation, (3) student attitudes in practice, (4) level of social cohesion, and (5) student-teacher relationship.

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To ensure the impartiality of the focus group analysis, an external coder was employed to analyze the data. Data triangulation was performed, and review sessions with other researchers were conducted to maintain objectivity.

As for the teacher's digital notebook, the researchers supervised the categorization of information collected within the different content blocks to identify any new blocks or missing information. At all times, the criteria of specificity and coherence in qualitative research studies were adhered to (Braun & Clarke, 2021).

Description of categories

In Table 5, the two primary categories of analysis are presented, along with the various subcategories that comprise each of these.

Table 5

Categories and Subcategories of Analysis

Students motivation
External regulation and introjected regulation
Intrinsic motivation and identified regulation
Students attitudes
Student attitudes in practice
Level of social cohesion
Student-teacher relationship

External regulation and introjected regulation: All general aspects related to student participation and predisposition toward tasks were collected. In this regard, special attention was paid to whether the activities were performed under external pressure (external regulation) and whether actions were taken to avoid internal pressures (introjected regulation).

Intrinsic motivation and identified regulation: In this category, researchers group information related to students volition to act (identified regulation), personal interests (intrinsic motivation) and other related variables such as fears, issues, and insecurities detected.

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Student attitudes in practice: It incorporates issues related to participation and involvement in class, comments and perceptions about the subject matter, the type of attitude displayed in class, and the evaluation of the course.

Level of social cohesion: This encompasses all general aspects related to the students relationships with their peers, the atmosphere of coexistence, the level of collaboration and cooperation, and the influence of the PE subject on all these aspects.

Student-teacher relationship: This category gathers information about the students perceptions of their relationship with the teacher, the attitudes they value most, and the impact that the teacher's role has on their participation.

Results

The results show that the AS PM has a positive effect, both on the levels of motivation and attitude of students in PE classes. The results extracted from the data analysis of the different categories are reflected below.

Influence of the AS on the students motivation levels

External regulation and introjected regulation (106 excerpts)

In this category, the data analysis shows how the sequential organization towards tasks generates an increase in student participation throughout the learning unit. In this sense, group work in small and large groups allows for greater enjoyment for students, involvement in tasks, and improvement of social relationships:

'I feel that in these classes I have been able to express myself better, I have been able to live a little more with my classmates and I have been able to socialize a little more'.

On the other hand, the participation of students in final assemblies, as well as in events and/or projects outside that involve classmates from other courses or other users (families, members of the center, etc.), increases the levels of student motivation, both external and introjected regulation, by feeling part of a group in which the responsibility is both group and individual to achieve a good result:

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'I participated more in collective classes, because it involved other people. I took it more seriously to give a good image and show that we are learning something'.

In this sense, it is worth highlighting the following conditions that affect external and introjected regulation collected in the digital teacher's notebook:

(1) The final events or external projects of the AS must be modified from time to time, as repeating a project that students already know from previous years (in which they were not organizers, but participants), decreases the levels of involvement and participation.

(2) When the participation of students in a significant project and/or final assembly requires greater involvement outside of school hours, and is voluntary, the predisposition towards the task decreases.

Intrinsic motivation and identified regulation (132 excerpts)

In the coding of the data and the analysis of the category, it was detected how the longitudinal application of the AS improved the levels of intrinsic motivation and regulated identification of the students. Initially, the students claimed to have certain fears, but over time they overcame them and came to enjoy the activities:

'You realize that it really wasn't that much, that the first day when they explained it to you it could seem like a lot, but then in reality you see that you can do it perfectly'.

In this sense, group work when it is repeated in all DU improves the confidence of the students towards their classmates, coming to have a good time and enjoy the activities, even if the members of the group are not their friends:

'If you touch with a person that you are not very close to her then you are going to say I am not going to do anything because I do not feel comfortable, but then when you see that that person has something good you want to participate more'.

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On the other hand, generating positive experiences in small groups, to later move on to large groups, improves both levels of motivation in students:

'In smaller groups I think we have more confidence because you leave us the freedom to put ourselves with whoever we want, unlike in a large group'.

In the digital teacher's notebook, in line with what was collected in the focus group discussions, an increase in student participation and involvement is highlighted as the course progresses and more learning units are carried out. In this sense, the realization of final assemblies in which all students contribute to the group and feel part of it has a positive effect on the intrinsic motivation and identified regulation of the students. An increase in commitment, enjoyment, and involvement is detected.

On the other hand, it is necessary to mention the following condition in its application:

(3) When the final assembly or project of the learning unit is not only of a motor nature, but also includes oral presentations in a large group, those more introverted students may see their identified regulation reduced. This situation occurs especially in the first learning units of the course, it being necessary to establish progressions from the beginning to avoid generating negative experiences in this type of student.

Influence of the AS on the students' attitudes

Student's attitudes in practice (94 excerpts)

In all focus group discussions, students highlight good behavior both individually and as a group, influenced by the type of activities, groupings, or dynamics of the sessions:

'This year it is evident that people want to get involved; you can tell they are not getting bored. There were other years when people practically didn't care about physical education.'

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On the other hand, students note that their attitudes may also be conditioned by external variables unrelated to PE itself, such as exams, the subject they have before or after or personal mood:

'It depends on what happens outside of school or in other subjects', 'Because if you come from a bad time or something like exams when you're more stressed out and so on, it's not the same as now that we've finished everything'.

Regarding attitudes, students highlight that PE has helped them forget about other problems and improve their mood. This aspect is noted in the teacher's notebook which emphasizes the positive influence on students of including AS-specific warm-up activities at the beginning of sessions. These manage to capture students' attention and engage them in practice:

'I feel that Physical Education classes help me be happier and free from all stress', 'At least it's an hour where you have fun and clear your mind'.

Considering what is recorded in the teacher's notebook, and in line with what is collected in the discussion groups, it is perceived how the attitudes of the students improve as the sessions progress. The positive experiences achieved in the classroom, both at an individual and group level, have a positive effect on their confidence, self-esteem, and participation. As a result, PE is established as a subject that serves them to release tensions, learn, and reduce their stress levels.

Level of social cohesion (120 excerpts)

The level of group cohesion has improved in all groups, students expose several advantages regarding individual work. They highlight the improvement of social relationships within the group and the fact of knowing the strengths and weaknesses of their peers to help them improve or ask for their help at different times:

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'Working individually seems to me that it would cost me more because I would be aware of whether people are noticing me. In a group, it gives you more thing, because you harm your peers'.

Students also highlight that group work, in which they made presentations in medium and large groups, has had a positive transfer to other subjects, feeling less judged by their peers in these classes due to the previous work done in PE:

'Last year it was not in plan, to show something to your peers in front of everyone, well, it was more difficult. Well now, since we have done a couple of jobs in the group, of classes and of exposing other people from the course, well, it has been easier to cope',

Student-teacher relationship (223 excerpts)

Finally, regarding the teacher-student relationship, all groups highlight a close relationship in which they feel confident to ask questions and participate in class:

'The relationship is close because when we have a problem you always try to help us and find the best solution', 'You motivate us to also change and be better'.

Among the characteristics they consider valuable in a teacher, they mention empathy, the fact of making exemplifications in class, the extroverted character or the closeness in age:

'... it can also be because of age because you have not lived it so far away and you know what is going through our heads, 'you understand us better than another older teacher and I think that also includes quite a bit'.

Likewise, they expose the importance of the teacher's role, being even more important than the content to generate motivation in the students:

'If we feel comfortable and we are and we also know the teacher is going to do it with us, we feel more motivated because he himself motivates us to do it'.

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In the table 6, the emerging themes and key patterns from the group interviews are summarized:

Table 6

Emerging themes and key patterns from the group interviews

Main theme	Subthemes	Frequency	Example quote
Influence of the AS on the students motivation levels	<i>External regulation and introjected regulation</i> - Sequential organization towards tasks increases participation and enjoyment. - Participation in final assemblies and external projects boosts motivation.	106 excerpts	'I have been able to express myself better and socialize more with my classmates'.
	<i>Intrinsic motivation and identified regulation</i> - Repeated group work enhances confidence and enjoyment. - Positive experiences in small groups improve motivation in larger groups.	132 excerpts	'I participated more in collective classes because it involved other people'.
Influence of the AS on the students attitudes	<i>Students attitudes in practice</i> - Good behavior influenced by activities, groupings, and session dynamics - Attitudes conditioned by external variables (exams, personal mood).	94 excerpts	'This year it is evident that people want to get involved; you can tell they are not getting bored'.
	<i>Level of social cohesion</i> - Group work improves social relationships and knowledge of peers' strengths and weaknesses. - Positive transfer to other subjects due to previous group work in PE.	120 excerpts	'Working individually would cost me more because I would be aware of whether people are noticing me. In a group, it gives you more thing because you harm your peers'.
	<i>Student-teacher relationship</i> - Empathy, exemplifications, extroverted character, and closeness in age are valued	223 excerpts	The relationship is close because when we have a problem you always try to help us and find the best solution'.
Conditions	- Modify final events/projects to maintain engagement. - Voluntary participation outside school hours reduces task predisposition. - Oral presentations in large groups may reduce identified regulation in introverted students. - The AS PM requires a high level of autonomy and responsibility on the part of the students for the presentation of the final assembly.		

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What is noted in the teacher's notebook is in line with the students' opinions. Closeness, empathy, and extroverted character are attributes highly valued by students. On the other hand, progressively placing greater responsibility and trust in students, as well as mastery and knowledge of the content to be taught in class, are key elements in the application of the PM. However, it is worth highlighting a condition in the application of the model:

(4) The AS PM requires a high level of autonomy and responsibility on the part of the students for the presentation of the final assembly. This situation requires a prior analysis of the group that allows adjusting the learning rhythms in order not to generate negative experiences that reduce the levels of motivation and attitude. Similarly, students need a certain period of adaptation to the new way of working.

Discussion

The objective of this research was to analyze the effects of the AS PM on the levels of motivation and attitude of the students when it is applied longitudinally throughout an academic year. For this, different subcategories of motivation and attitude were measured. In this regard, the discussion will be structured based on the analysis of these two main categories.

Effect of the application of the AS on the motivation levels of students

PMs encourage students to take a more active role in their own learning. As a result, increasing opportunities for students to learn collaboratively may yield benefits in terms of motivation (Barkley et al., 2014). It is evident that students' self-determined motivation increases when Model-Based practices are implemented or when traditional Direct Instruction sessions are carried out using a variety of autonomous supportive pedagogical resources (Sierra-Díaz et al., 2019). In this context, research findings indicate that students' motivation levels increase after the implementation of the AS. This increase is associated with greater enjoyment, a higher appreciation of the subject, and improved social relationships in class. These results align with previous publications (Hortigüela-Alcalá et al., 2016; 2018), which demonstrate enhancements in students' physical self-concept and perception of PE.

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Furthermore, the structured organization of attitudes within the AS session framework plays a crucial role in fostering student autonomy and improving social interactions within the group. This, in turn, leads to increased intrinsic motivation and identified regulation in the classroom. Notably, experiences suggest that granting students greater autonomy in the PE classroom positively impacts their physical activity levels (Weigand & Burton, 2010). Additionally, research findings highlight that frequent collaborative interactions among students during learning tasks enhance motivation. These results align with other studies, indicating that students' active participation in collaborative groups fosters opportunities for mutual support, resource exchange, enhanced interaction, and mutual influence. All these factors contribute to higher motivation compared to students in control groups (Johnson & Johnson, 2008; Fernández-Río et al., 2017). Consequently, regular interaction among group members effectively enhances new knowledge based on the comprehended information exchanged during collaborative tasks (Van, 2019; De Felice et al., 2022).

In this regard, the results demonstrate an improvement in extrinsic motivation and introjected regulation due to positive social interactions that occur in the classroom through the projects and final assemblies characteristic of the AS approach, in which other classmates or members of the school participate. All of this fosters a positive perception of achievement among students and increases motivation toward learning (Hortigüela-Alcalá et al., 2015). While it is important to note that the socioeconomic composition of the students (middle level) may have influenced the results, as highlighted by Saoudi et al. (2023), it is necessary to delve deeper into future research on how cultural and socioeconomic differences among students can affect the perception and effectiveness of the model.

Effect of the application of the AS on students attitudes towards PE practice

Results showed that the AS created a more positive attitude towards PE: "participation and level of social cohesion", "student-teacher relationship" and "empathy with the teacher". These results are aligned with Hortigüela-Alcalá et al. (2016) where results showed that students who experienced this approach developed significantly more empathy towards teachers than those in the traditional group. Among

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the various factors that may have influenced this outcome is the ongoing dialogue between the teacher and the student throughout the process, a key aspect highlighted in several studies (Guo et al., 2023). This is a fundamental feature of the AS, which aims to make learners aware of the activities they perform to integrate their learning (Pérez-Pueyo, 2016).

On the other hand, the results indicate that the level of social cohesion of all groups improved after the application of the model, resulting in an increase in motor performance. These same results were obtained by the authors Navarro-Patón et al. (2017), who showed that a positive social climate in PE is the factor that most influences the level of motor performance of students. It is worth noting that the data reflects that this level of social cohesion has been highly influenced by the sequential organization towards attitudes in which working in large and small groups improves interpersonal relationships in the classroom. Other research shows that group work provides students with more opportunities to improve interpersonal skills (Bertucci et al., 2010), consider various solutions from different points of view, and experience achievement in learning (Moore, 2008), which resulted in these positive outcomes. In short, students social, academic, and psychological success led to their positive attitudes in learning (Johnson & Johnson, 2008). In this way, Hortigüela-Alcalá et al. (2016) reflected that the students who received classes applying the AS had the highest grades and a higher opinion of PE.

Finally, it is essential to highlight that student attitudes are profoundly influenced by the teacher's role, a point demonstrated in various studies (Blazar & Kraft, 2018; Tang & Hu, 2022). As noted by Hortigüela-Alcalá et al. (2016), after the implementation of the AS, students have reported a positive rapport and appreciate the teacher's involvement, engagement, and dedication within the classroom setting. In this regard, various studies (Guo et al., 2023; Ribeiro et al., 2024) demonstrate that when teachers show enthusiasm for the subject matter and actively participate in class activities, it can significantly motivate students to engage more enthusiastically. These findings align with the meta-analysis conducted by Vasconcellos et al. (2019), which demonstrates that support from a PE teacher can inspire students to achieve adaptive outcomes through their sense of autonomy and competence.

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Conclusions

The application of the emerging PM AS in the classroom during an academic year improves the levels of attitude and motivation among students in Secondary Education. Group work, the promotion of autonomy, and the generation of positive attitudes and experiences on a daily basis are established as the main elements of the model that enable this positive effect on both variables. In its application, it is important to highlight the role of the teacher in improving student autonomy, involvement, and commitment, these being possible conditions in its application.

Regarding the limitations of the study, the small sample size, the exclusively qualitative approach, and the lack of analysis of gender differences are highlighted. Additionally, it is necessary to delve into future research lines on possible conditions for its application, as well as to analyze its effect in other contexts with different demographic and socioeconomic characteristics. It is also suggested to study how this pedagogical model could be applied to other educational levels or different cultural contexts.

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