apunts EDUCACIÓN FÍSICA Y DEPORTES

ISSUE 160

Published: April 1, 2025
https://doi.org/10.5672/apunts.2014-0983.es.(2025/2).160.02

OPEN ACCESS

Impact of the Attitudinal Style on High School Students' Motivation in Physical Education

José Luis Álvarez-Sánchez[1*], Miguel Ángel Tapia-Serrano[2], Jessenia Hernández-Elizondo[3], David Hortigüela-Alcalá[4] & Ángel Pérez-Pueyo[1]

[1] Faculty of Physical Activity and Sports Sciences, University of León (Spain).
[2] Faculty of Teacher Training, University of Extremadura, Cáceres (Spain).
[3] School of Physical Education and Sports, University of Costa Rica (Costa Rica).
[4] Faculty of Education, University of Burgos (Spain).

Cite this article
Álvarez-Sánchez, J. L., Tapia-Serrano, M. A., Hernández-Elizondo, J., Hortigüela-Alcalá, D. & Pérez-Pueyo, A. (2025). Impact of the Attitudinal Style on High School Students' Motivation in Physical Education. *Apunts Educación Física y Deportes, 160*, 10-17. https://doi.org/10.5672/apunts.2014-0983.es.(2025/2).160.02

Edited by:
© Generalitat de Catalunya
Departament d'Esports
Institut Nacional d'Educació Física de Catalunya (INEFC)

ISSN: 2014-0983

***Corresponding author:**
José Luis Álvarez-Sánchez
josel.alvsan.2@educa.jcyl.es

Section:
Physical education

Original language:
English

Received:
November 7, 2024
Accepted:
January 10, 2025
Published:
April 1, 2025

Front cover:
Ana Alonso and Oriol Cardona achieve their qualification for the new Olympic sport of ski mountaineering by taking second place at the 2025 World Championships in Boí Taüll.
© ISMF

Abstract

The main aim of the study was to deepen examination of the emerging Attitudinal Style (AS) pedagogical model and assess its impact on the motivation of high school students. The sample consisted of 80 high school students, 47.5% female and 52.5% male, aged between 14 and 16 years (M = 14.97; SD = 0.43), from two different schools. Two teachers participated, one at the intervention school (n = 42) and one at the control school (n = 40). The methodology was a quasi-experimental design with pretest and posttest evaluation. Over the course of four consecutive learning units (24 sessions, 3 months), the teacher at the intervention school implemented an AS program, whereas the teacher at the control school employed a mixed method. The Perceived Locus of Causality Scale in Physical Education-2 was used to assess students' motivation levels. The results showed that the intervention school exhibited significantly higher levels of intrinsic motivation regulation (pre: 2.47 ± 0.18, post: 3.85 ± 0.18, p < .001), integrated regulation (pre: 2.26 ± 0.21, post: 3.36 ± 0.20, p < .001), and identified regulation (pre: 2.47 ± 0.20, post: 4.00 ± 0.20, p < .001). Likewise, levels of amotivation were significantly lower in the intervention school (pre: 1.67 ± 0.17, post: 0.59 ± 0.16, p < .001) compared to the control school. The students therefore experienced significantly higher motivation in physical education classes following the implementation of the AS.

Keywords: educational outcomes, pedagogical models, quasi-experimental design, School-based intervention, secondary education.

Introduction

In the context of Physical Education (PE), motivation is the primary key to influencing students' learning success (Chen, 2001; Cenic et al., 2019). Motivation is also useful for researching different consequences, such the behavior of students following educational goals or the intention to be active in the future (Castillo et al., 2020). To understand motivation, Self-Determination Theory (SDT) (Ryan & Deci, 2017; 2020) breaks down motivation into different types (Chen, 2001). These include amotivation, (where an individual lacks intention for action), external regulation (where action is taken under the duress of external agents), introjected regulation (where actions are taken to evade internal pressures), identified regulation (where an individual exhibits high volition to take action), integrated regulation (where activities are assimilated with personal values and interests), and autonomous motivation (where actions are driven by personal interests). This theory has been widely used in PE, showing potential effectiveness in the use of intervention programs to increase the variety of motivation outcomes in students (Vasconcellos et al 2019; Pérez-González et al., 2019; Kelso et al., 2020; Diloy-Peña et al., 2021).

However, many children present high levels of amotivation (Aniszewski et al., 2019) making the teaching-learning process difficult (Ryan & Deci, 2017; 2020). This may be due to inappropriate learning models and less innovative learning patterns, resulting in students who are less enthusiastic about learning (Syahidah et al., 2023). Therefore, in an effort to improve the teaching-learning process and increase motivation, researchers have been seeking out innovative methods to improve these capacities in students (Kelso et al., 2020). These innovative methods, such as pedagogical models (PMs) (Casey & Kirk, 2021; Sánchez-Alcaraz et al., 2021; Pérez-Pueyo et al., 2021; Camerino et al., 2023), diverge from focusing solely on content or the teacher, and strive to align learning outcomes with student needs and teaching styles (Casey, 2016). Therefore, PMs emerged from the combination of context, subject matter, and teachers' and students' expectations and behaviors conceived of as a whole construct (Casey, 2016). Increasing opportunities for students to learn collaboratively may also yield benefits in terms of motivation (Barkley et al., 2014; McKeachie et al., 2006). The Attitudinal Style (AS) is one learning strategy that is considered to be able to foster motivation (Pérez-Pueyo, 2016).

Attitudinal style as an emerging pedagogical model for enhancing motivation in physical education

The AS focuses on attitudes as the central element of the teaching and learning process, with the primary objective of promoting higher motivation towards PE and enhancing learning outcomes (Pérez-Pueyo et al., 2020). Its long-term implementation in the classroom aims to increase student motivation and cultivate a positive attitude towards practice (Pérez-Pueyo, 2016). To achieve this, the model encourages autonomy and student participation in the classroom, and aims to improve social relationships and enhance 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 from SDT, which has been shown to positively influence autonomous motivation (intrinsic motivation, integrated regulation, and identified regulation) within the context of PE (Vasconcellos et al., 2019).

In terms of application, the model does not focus solely on a motor dimension but on the comprehensive development of the five types of abilities defined by Coll (1991). Of those, 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 (Pérez-Pueyo, 2016). In this sense, Fierro-Suero et al. (2023) have shown the importance of considering 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 (Meyer and Turner, 2006; Castillo et al., 2020). The session design addressed three components: intentional bodily activities, sequential organization towards attitudes (SOA), and final assemblies (see Table 1). However, the author does not perceive this design as rigid (Pérez-Pueyo et al., 2020).

The model is based on five pillars: critical reflection by the teacher on educational practice, intentional work on motivational aspects to create positive experiences, using motor skills as a means, from a critical perspective regarding the more mechanistic view of PE, and questioning demonstration as an essential resource in the classroom (Pérez-Pueyo et al., 2021). In this way, the teacher becomes a facilitator of learning, adapting educational practices to accommodate various learning paces and student characteristics.

Table 1
Characteristics and main components of AS.

Intentional bodily activities	Sequential organization towards attitudes	Final assemblies
1) Use of motor skills as a means and not as an end.	1) Students begin activities in pairs or trios based on affinity.	1) The final assemblies conclude the process followed so far by showcasing both individual and group progress through a project.
2) Engage the student and foster individual and/or group responsibility.	2) Progress to groups of four, eight, twelve, and finally the whole class.	
3) Assist the student in recognizing and surpassing their limits. Connect to self-evaluation and/or peer evaluation processes.	3) This organization is not rigid but varies based on the content or the type of assembly.	

Note: Own elaboration.

In the existing literature, numerous informative publications provide a detailed guide on how to implement the AS in the classroom, but we found no research thoroughly examining whether the model leads to improvements in student motivation, that being the primary objective.

Considering the lack of studies on the subject, research is needed to establish how AS affects the motivation of PE students. Therefore, the objective of this study was to analyze the impact of an AS intervention in high school PE classes on student motivation variables and to compare these effects with those of a mixed methods intervention. Building upon these premises, the primary hypothesis proposed that after exposure to an AS methodology, students would experience significant improvement in different motivation outcomes within PE classes.

Method

Design and participants

This study used a quasi-experimental design with pretest and posttest evaluation with the control school (CS) (Cohen et al., 2011). The participants came from two different public high schools in Spain with similar mid-level sociodemographic profiles. The teachers who participated in the study were two career teachers with similar teaching experience (2–4 years), aged between 26 and 31 years. One teacher taught at the intervention school (IS) and the other at the CS. The IS teacher had extensive prior training on the application of AS, having several informative publications on the application of the model. However, this was their first year teaching the participating students, and those students had never been exposed to the AS. This led to the justification of examining to what extent the methodology may or may not influence student motivation. In addition, the IS teacher underwent a period of continuous training on how to implement the educational program and subsequent analysis by a qualified specialist in the field. On the other hand, the CS teacher had prior experience in directive teaching styles and had recently completed a short-term training on various PMs. However, they did not have experience in applying the latter.

The student sample was selected for accessibility and convenience, and for access to data and the opportunity offered by the two schools to implemented the proposed LU. It originally consisted of 96 students between the two schools with grades representing the four years of high school or secondary education. Inclusion criteria for study participation (for both groups) were (a) regular attendance in PE classes (≥90%) and (b) completion of all the questionnaires. None of the participating students had any previous experience with AS. The final sample consisted of a total of 82 students, of which 42 belonged to the IS (M = 14.93; SD = 0.36) and 40 to the CS (M = 15.01; SD = 0.51).

Instruments

Motivation. The Perceived Locus of Causality Scale in Physical Education-2 (PLOC-2) (Ferriz et al., 2015) was used to assess the students' motivation levels. The questionnaire started with the following sentence: "I participate in the Physical Education classes…" and the scale included 24 items grouped into six factors: intristic motivation (i.e., "Because it is fun"), identified regulation (i.e., "Because it is in agreement with my way of life"), introjected regulation (i.e., "Because I want the teacher to think that I am a good student"), external regulation (i.e., "Because I will have problems if I don't do it"), integrated regulation (i.e., "Because it aligns with my way of life"), and amotivation (i.e., "But I don't really know why"). Participants answered according to a Likert-type scale ranging from 0 (totally disagree) to 5 (totally agree). All the constructs scored positively except for the amotivation construct, which scored negatively.

The pre- and post-Cronbach's α values ranged between .69 and .93, with integrated regulation obtaining the highest value of internal consistency. Regarding the different subscales: intrinsic motivation .67 and .86, identified regulation .70 and .87, introjected regulation .64 and .84, external regulation .54 and .80, integrated motivation .80 and .91, and amotivation .51 and .79, respectively.

Table 2
Intervention weeks, sessions, and learning units/content (intervention school/control school).

Weeks	Lessons	Methodology		Learning Unit
		Intervention school	Control school	
1–2 weeks	4	Attitudinal Style	Cooperative Learning	Physically emotional challenges
3–6 weeks	8		Direct Instruction	Collective physical condition classes
7–10 weeks	8		Direct Instruction and Service-learning	Injury prevention and first aid
9–12 weeks	4		Direct Instruction	Diet and nutrition

Design and Procedure

To conduct this research, the first step was to obtain permission from the University of León Ethics Committee (ETICA-ULE-048-2023). Subsequently, the directors of the two schools were contacted to request their collaboration. Lastly, informed consent was obtained from the parents of all study participants. The study adhered at all times to the relevant ethical values in research involving human beings: informed consent, right to information, protection of personal data, guarantees of confidentiality, non-discrimination, gratuity, and possibility to withdraw from the study in any of its phases (McMillan & Schumacher, 2001). The participating groups completed the previously described questionnaire on two occasions (prior to the intervention and three months post-intervention) in a calm environment, and were given 20 minutes to do so. The participants responded anonymously, which also contributed to ensuring data processing confidentiality. The importance of responding honestly to the questions was emphasized, assuring that answers would not influence their evaluation in any way.

Ethical recommendations established by various international educational research bodies were followed at all times, maintaining the anonymity of the sample and using the obtained data exclusively for the purposes of this research (American Psychological Association, 2020).

School-based intervention

An intervention program (see Table 2) was conducted at both schools over three months: two 50-minute sessions per week, 4 LUs and 24 sessions. The IS experienced AS in all the LUs, whereas the CS experienced a mix methods approach. Nevertheless, both groups covered the same LU during at the same period of time in accordance with the current Spanish Education Law. In this way, different blocks of content and basic knowledge proposed in the Spanish curriculum were addressed: (1) Active and healthy life (Injury Prevention and First Aid; Diet and Nutrition), (2) Organization and management of physical activity (Collective Physical Condition classes), (3) Problem-solving in motor situations (Physically Emotional Challenges), and (4) Emotional self-regulation and social interaction (transversal across all LUs).

A) Attitudinal style

The teacher responsible for teaching classes at the IS had previous experience in implementing AS in secondary education (four years) and had also published several informative publications about the practical application of the model in the classroom. Once the intervention program was designed, it was sent to experts in the applied methodology. In this sense, the fidelity of the design was strengthened through an extensive description of the curricular elements of the proposed LU, the evaluation of the different parts of the LU (session model, type of groupings, main components, among others), and their adaptation to the context. Once the experts approved the intervention program, online meetings were held once a week for the 12 weeks of intervention. In this regard, contact was also maintained with the CS teacher throughout the entire intervention program to verify adherence to the proposed program.

On the other hand, to consolidate AS implementation, multiple videos of the final assemblies of the various LUs were disseminated. The different stages of the units were tracked through a digital diary maintained by the teacher and shared with the experts via the OneDrive platform. In the digital diary, the teacher noted what happened during the different sessions, the main reflections, and the teaching-learning activities carried out in the session. The purpose was to provide qualitative feedback and improvement suggestions from the experts, rather than to serve as a tool for quantitative analysis. Nevertheless, it was also used to analyze the factors influencing the implementation of the model, which is reflected in the results section.

B) The mixed methods program

A directive methodology was employed in almost all the LUs, specifically direct instruction (Mosston & Ashworth, 1986). Within the contents of Collective Physical Condition classes and Diet and Nutrition, the students replicated the instructions provided by the teacher. Progression in the action is predicated on motor logic, with execution being the paramount feature, rather than the role that each group

member plays. On the contrary, in the AS, the progression of activities not only addresses motor patterns, but also the motivational and relational dimensions, which are considered to be key factors (Pérez-Pueyo, 2016).

In relation to the Physically Emotional Challenges and Injury Prevention and First Aid course content, cooperative learning (CL) (Johnson & Johnson, 1999) and service learning (SL) (Dewey, 1938) models were used. It is worth noting that the teacher did not undergo prior training in these latter models beyond autonomous learning.

Therefore, despite the LUs covering the same content, the educational goals in each of the groups were different, largely defined by the type of methodology used.

Data analyses

The statistical software SPSS v.23.0 was used for the analysis. Prior to conducting the primary analyses, the data normality and homogeneity were evaluated. The Kolmogorov-Smirnov and Levene tests indicated that the data exhibited normality ($p > .05$) and homogeneity ($p > .05$) independently for the IS and CS. Frequencies, means, and standard deviations were calculated for the study variables.

To examine the effects of this school-based intervention, a 2x2 (time x group) multivariate repeated measures analysis of covariance was conducted on the variables included in the research (before and after the school-based intervention). Multiple paired *t*-tests with the Bonferroni correction were calculated for the continuous variables to determine intra-group (i.e., between IS and CS) and inter-group (i.e., pre-post) differences. Cramér's V was used to describe the degree of association between the IS and CS. Effect sizes were assessed using partial Eta squared (η_p^2) for continuous variables. Effect sizes were considered small, moderate, or large, when the η_p^2 was above .01, .06 and .14, respectively.

Results

Interaction effects

Table 3 shows the differences between the experimental and control groups before and after the intervention (between-school differences), pre-and post-test (within-school differences), and interaction effects. No significant differences were found in the time x group interaction effects for motivational regulation (Wilks' Lambda = 0.866; F (6, 75) = 1.935; p = .086; η_p^2 = .134). However, within-school and between-school effects showed some significant differences in the behaviours assessed.

Within-school effects

Before the intervention, no significant differences were found between the CS and IS for most of the study variables, with the exception of amotivation, which was significantly higher in the CS ($p < .01$, see Table 3). After the school intervention, significant differences were found between the IS and CS for intrinsic motivation regulation, integrated regulation, identified regulation, and amotivation ($p < .001$), which was significant higher in the IS.

Table 3

Descriptive statistics of the study variables for the intervention and control schools in pre-and post-test: Within- and between-school differences and interaction effects.

Groups study variables	Test time	Control school	Intervention school	Contrast within-school differences (pre-and post-test)				
		M ± *SD*	*M* ± *SD*	Mean Diff.	SD	*F*	*p*	η_p^2
Motivational regulations: Wilks' Lambda = 0.866; F (6, 75) = 1.935; p = .086; η_p^2 = .134								
Intrinsic motivation (range: 1–5)	Pre	2.82 ± 0.21[a]	***3.06 ± 0.20[a]***	–-0.24	0.29	0.707	**.403**	.009
	Post	2.47 ± 0.18[a]	***3.85 ± 0.18[b]***	–1.38	0.25	29.57	***<.001***	.270
Integrated regulation (range: 1–5)	Pre	2.69 ± 0.23[a]	***2.53 ± 0.22[a]***	0.16	0.32	0.243	.624	.003
	Post	2.26 ± 0.21[a]	***3.36 ± 0.20[b]***	–1.10	0.30	13.550	***<.001***	.145
Identified regulation (range: 1–5)	Pre	2.82 ± 0.22[a]	***3.36 ± 0.22[a]***	–0.55	0.31	3.058	.084	.037
	Post	2.47 ± 0.20[a]	***4.00 ± 0.20[b]***	–1.53	0.28	29.931	***<.001***	.272
Introjected regulation (range: 1–5)	Pre	2.13 ± 0.20[a]	2.02 ± 0.20[a]	0.10	0.29	0.131	.718	.002
	Post	2.08 ± 0.21[a]	2.54 ± 0.21[a]	–0.45	0.29	2.359	.128	.029
External regulation (range: 1–5)	Pre	2.24 ± 0.21[a]	2.17 ± 0.21[a]	0.07	0.29	0.058	.810	.001
	Post	2.08 ± 0.20[a]	2.26 ± 0.19[a]	–0.18	0.27	0.398	.530	.005
Amotivation (range: 1–5)	Pre	1.14 ± 0.19[a]	0.83 ± 0.19[a]	0.62	0.27	5.184	***<.01***	.061
	Post	1.67 ± 0.17[a]	0.59 ± 0.16[a]	1.08	0.24	21.156	***<.001***	.209

Note. SD = Standard deviation; Diff. = Difference; CI = Confidence interval. The values with significant differences are presented in bold. Interaction effects are detailed next to each variable. The comparison between schools for each variable is indicated with different superscripts ([a]no differences, [b]differences) in pre-and post-test. A mean is significantly different from another mean if they have different superscripts.

Between-school effects

Overall, no significant changes were found among the CS students for any of the motivational regulations assessed. In contrast, the IS students showed better intrinsic motivation regulation ($p < .01$, see Table 3), integrated regulation ($p < .01$), and identified regulation ($p = .033$) after the school-based intervention.

Discussion

The aim of the study was to analyze the effect of use of the emerging PM AS on the motivation levels of secondary education students. To this end, we measured different motivation dimensions (intrinsic motivation and identified regulation, introjected regulation, external regulation, and amotivation).

The main study findings indicate that AS implementation had a positive influence on various dimensions of student motivation. These results align with previous research that used PMs and motivating teaching styles, addressing students' basic psychological needs (competence, autonomy, and relatedness) to enhance motivation and engagement in the classroom (Sierra-Díaz et al., 2019; Franco et al., 2023; Moreno-Murcia et al., 2024).

On the other hand, contrary to the results reported by López-Urán et al. (2022), which indicated a tendency toward amotivation after the model's implementation, prior publications focusing on the application of AS (Hortigüela-Alcalá et al., 2016; 2018) demonstrated that its use in the classroom leads to an increase in students' self-concept and improvements in the teacher-student relationship. All these variables contribute positively to increasing autonomous motivation (Pavlović et al., 2021; Van Doren et al., 2021).

In relation to the effectiveness of the intervention program, significant differences favoring the IS were found between the IS and the CS regarding autonomous motivation (intrinsic motivation, integrated and identified regulation) and amotivation.

These findings align with systematic reviews and meta-analyses conducted by Kelso et al. (2020) and Vasconcellos et al. (2019), which demonstrate a positive effect of SDT-based intervention programs in PE on intrinsic motivation and integrated and identified regulation. In this regard, although CS was applied in two units, CL and SL, whose effectiveness has been demonstrated (Yang et al., 2021; Pérez-Ordás et al., 2021), it is important to note, as Casey (2024) points out, that these approaches should not be implemented in isolation or be expected to yield immediate results. Therefore, the impact on motivation levels may have been influenced by their application in a single unit. In this sense, the hybridization between DI and SL may have diluted the effectiveness of SL due to the potential tensions that arise when these models are combined. As discussed in the works of Casey & Kirk (2024) and Casey (2024), it is essential to reflect on how hybridizations are carried out and how they are adapted to the needs of the group to avoid pedagogical contradictions.

Regarding the amotivation variable, for which significant differences favoring the IS were found between the IS and the CS, it is important to highlight that non-significant effects were observed in the meta-analyses conducted by Kelso et al. (2020) and Vasconcellos et al. (2019) when applying PMs. In this context, the improvement in the students' amotivation levels may be attributed to the emphasis on attitudes as a central element in fostering a task-oriented motivational climate, rather than an ego-oriented one (Pérez-Pueyo, 2016).

In terms of external and introjected regulation, due to its inherent characteristics, AS prioritizes the development of autonomous motivation and a focus on learning goals. As a result, external and introjected regulation are influenced to a lesser extent. This same pattern can also be observed in other PMs, such as CL (Sierra-Díaz et al., 2019).

Conclusion

The results of this research indicate that the use of the emerging PM AS over a period of 3 months (4 LUs) has a positive effect on most motivational dimensions when compared to a group in which a mixed methodology was applied. In this regard, the teaching and learning implications, as well as the theoretical foundations of AS, align with the postulates of SDT and the enhancement of basic psychological needs. This is achieved by focusing on the holistic development of students through a task-oriented motivational climate, where students are the protagonists of the teaching-learning process from a collaborative approach. In this regard, implementation of the AS in the classroom should begin with laying down a solid foundation, involving students in the process and in joint problem-solving, and long-term implementation throughout the school year to boost improvement in motivation levels.

Regarding the study limitations, we recognize the need for longer intervention programs that incorporate repeated pre-test and post-test measurements. This would facilitate the analysis and comparison of the model's long-term effects. Furthermore, it would be pertinent to explore potential differences in motivation variables based on gender, exercise habits, physical activity, and socioeconomic status. In this regard, qualitative research focused on measuring motivation could help to understand in-depth the perceptions and opinions of both teachers and students.

This article may be of interest to PE teachers. It reflects on the impact that AS can have on student motivation and may help to refocus pedagogical approaches around the development of motivational dimensions.

References

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). American Psychological Association. https://doi.org/10.1037/0000165-000

Aniszewski, E., Henrique, J., de Oliveira, A. J., Alvernaz, A., & Vianna, J. A. (2019). (A)Motivation in physical education classes and satisfaction of competence, autonomy and relatedness. *Journal of Physical Education*, *30*(1), 3052. https://doi.org/10.4025/jphyseduc.v30i1.3052

Barkley, E. F., Cross, K. P., & Major, C. H. (2014). *Collaborative learning techniques: A handbook for college faculty*. Jossey-Bass.

Camerino, O., García-Castejón, G., Valero-Valenzuela, A., & Castañer. M, (2023). *Innovar en educación física y deportes. El modelo pedagógico de responsabilidad personal y social (MRPS)*. Servicio de Publicaciones de la Universidad de Lleida.

Casey, A. (2016). *Models-based practice. Handbook of physical education pedagogy*. Routledge.

Casey, A. (2024). The ghosts of research past, present and future: Understanding the past to inform a future of models-based practice research. *Physical Education and Sport Pedagogy*, 1–14. https://doi.org/10.1080/17408989.2024.2438056

Casey, A., & Kirk, D. (2021). *Models-based practice in physical education.* Routledge.

Casey, A., & Kirk, D. (2024). *Applying models-based practice in physical education* (1st ed.). Routledge. https://doi.org/10.4324/9780429347078

Castillo, I., Molina-García, J., Estevan, I., Queralt, A., & Álvarez, O. (2020). Transformational teaching in physical education and students' leisure-time physical activity: The mediating role of learning climate, passion and self-determined motivation. *International Journal of Environmental Research Public Health, 17*(13), 4844. https://doi.org/10.3390/ijerph17134844

Cenic, D., Petrović, J., & Cenić, S. (2019). The most important motivation factors for knowledge acquisition and successful learning. *Teaching, Learning and Teacher Education, 2*, 149–159. https://doi.org/10.22190/FUTLTE1802149C

Chen, A. (2001). A Theoretical conceptualization for motivation research in physical education: An integrated perspective. *Quest, 53*(1), 35–58. https://doi.org/10.1080/00336297.2001.10491729

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education.* Routledge.

Coll, C. (1991). *Aprendizaje escolar y construcción del conocimiento*. Paidós.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268.

Dewey, J. (1938). *Experience and education.* Macmillan.

Diloy-Peña, S., García-González, L., Sevil-Serrano,J., Sanz-Remacha, M. & Abós, A. (2021). Motivating teaching style in physical education: how does it affect the experiences of students? *Apunts Educación Física y Deportes, 144*, 44–51. https://doi.org/10.5672/apunts.2014-0983.es.(2021/2).144.06

Fierro-Suero, S., Castillo, I., Almagro, B.J., & Saénz-López., P. (2023). The role of motivation and emotions in physical education: Understanding academic achievement and the intention to be physically active. *Frontiers Psychology*, *14*, 1253043. https://doi.org/10.3389/fpsyg.2023.1253043

Ferriz, R., González-Cutre, D., & Sicilia, A. (2015). Revisión de la Escala del Locus Percibido de Causalidad (PLOC) para la inclusión de la medida de la regulación integrada en educación física. *Revista de Psicología del Deporte*, *24*(2), 329–338.

Franco, E., González-Peño, A., Trucharte, P., & Martínez-Majolero, V. (2023). Challenge-based learning approach to teach sports: Exploring perceptions of teaching styles and motivational experiences among student teachers. *Journal of Hospitality, Leisure, Sport & Tourism Education, 32*(3), 100432. https://doi.org/10.1016/j.jhlste.2023.100432

Hortigüela-Alcalá, D., Fernández-Río J., & Pérez-Pueyo, A. (2016). Long-term effects of the pedagogical approach on the perceptions of physical education by students and teachers. *Journal of Physical Education and Sport, 16*(4), 1326–1333. https://doi.org/10.7752/jpes.2016.04210

Hortigüela-Alcalá, D., Salicetti-Fonseca, A., & Hernando-Garijo, A. (2018). Relationship between the level of physical activity and the motivation of physical education teachers. *Sportis*, *4*(2), 331–348. https://doi.org/10.17979/sportis.2018.4.2.3291

Johnson, D. W., & Johnson, R. T. (1999). Making cooperative learning work. *Theory Into Practice, 38*(2), 67–73. https://doi.org/10.1080/00405849909543834

Kelso, A., Linder, S., Reimers, A. K., Klug, S. J., Alesi, M., Scifo, L., Chicau, C., Monteiro, D., & Demetriou, Y. (2020). Effects of school-based interventions on motivation towards physical activity in children and adolescents: A systematic review and meta-analysis. *Psychology and Sport Exercise, 51*, 101770. https://doi.org/10.1016/j.psychsport.2020.101770

López-Urán, J. M., Férriz-Valero, A., Baena-Morales, S., & García-Martinez, S. (2022). Incidencia motivacional de modelos pedagógicos emergentes en estudiantes de educación secundaria de educación física (Motivational incidence of emerging pedagogical models in physical education secondary school students). *Logía*, *Educación Física y Deporte, 2*(2), 58–73.

MacMillan, J. H., & Schumacher, S. (2001) *Research in education. A conceptual introduction* (5th Edition). Longman.

McKeachie, J., Svinicki, M., & Hofer, B. (2006). *Teaching tips: Strategies, research, and theory for college and university teachers*. Houghton Mifflin Harcourt.

Meyer, D. K., & Turner, J. C. (2006). Re-conceptualizing emotion and motivation to learn in classroom contexts. *Education Psychology Review, 18*, 377–390. https://doi.org/10.1007/s10648-006-9032-1

Moreno-Murcia, J. A., Saorín-Pozuelo, M., Baena-Morales, S., Ferriz-Valero, A., & Barrachina-Peris, J. (2024). Motivating teaching styles and directiveness in physical education. *Apunts Educación Física y Deportes*, *155*, 38–49. https://doi.org/10.5672/apunts.2014-0983.es.(2024/1).155.05.

Mosston, M., & Ashworth, S. (1986). *La enseñanza de la educación física.* Editorial Hispano Europea.

Pavlović, S., Marinkovic, D., Mádić, D. M., Djordjic, V., Milanović, I., & Brymer, E. (2021). Motivation and physical self-concept as indicators of students' physical activity in physical education classes. *Facta Universitatis Series Physical Education and Sport, 2*, 119–128. https://doi.org/10.22190/FUPES201214004P

Pérez-González, A. M., Valero-Valenzuela, A., Moreno-Murcia, J. A., & Sánchez-Alcaraz, B. J. (2019). Systematic review of autonomy support in physical education. *Apunts Educación Física y Deportes*, 138, 51–61. https://dx.doi.org/10.5672/apunts.2014-0983.es.(2019/4).138.04

Pérez-Ordás, R., Nuviala, A., Grao-Cruces, A., y Fernández-Martínez, A. (2021). Implementing service-learning programs in physical education; teacher education as teaching and learning models for all the agents involved: *A systematic review International Journal of Environmental Research and Public Health, 18* (2), 669. https://doi.org/10.3390/ijerph18020669

Pérez-Pueyo, Á. (2016). El estilo actitudinal en educación física: Evolución en los últimos 20 años (The attitudinal style in Physical Education: Evolution in the past 20 years). *Retos: Nuevas Tendencias en Educación Física, Deporte y Recreación, 29*, 207–215. https://doi.org/10.47197/retos.v0i29.38720

Pérez-Pueyo, A., Hortigüela-Alcalá, D., & Fernández-Río, J. (2020). Evaluación formativa y modelos pedagógicos: Estilo actitudinal, aprendizaje cooperativo, modelo comprensivo y educación deportiva. *Revista Española de Educación Física y Deportes*, 428, 47–66. https://doi.org/10.55166/reefd.vi428.881

Pérez-Pueyo, A., Hortigüela-Alcalá, D., & Fernández-Río, J. (2021). *Los*

modelos pedagógicos en educación física: Qué, cómo, por qué y para qué. Servicio de Publicaciones de la Universidad de León.

Ryan, R. M., & Deci, E. L. (Eds.). (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications. https://doi.org/10.1521/978.14625/28806

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Education Psychology*, *61*, 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Sánchez-Alcaraz Martínez, B. J. Valero-Valenzuela, A., Navarro-Ardoy, D., Merino Barrero, J. A., Goméz Mármol, A., Velo Camacho, C., Manzano Sánchez, D., Melero Cañas, D., García Mullois, J.A., García Ruíz, J., Muñoz Parreño, J.A., Alfonso Asencio, M., Mahedero Navarreta, M.P., Cifo Izquierdo, M.I., Hellín Martínez, M. & Caballero Blanco, P. (2021). *Metodologías emergentes en educación física: Consideraciones teórico-prácticas para docentes*. Wanceulen Editorial.

Sierra-Díaz, M. J., González-Villoría, S., Pastor-Vicedo, J. C., & López-Sánchez, G. F. (2019). Can we motivate students to practice physical activities and sports through models-based practice? A systematic review and meta-analysis of psychosocial factors related to Physical Education. *Frontiers Physiology*, *10*, 2115. https://doi.org/10.3389/fpsyg.2019.02115

Syahidah, L. SN., Suherman, A., & Rahman, A. A. (2023). Analisis motibasi guru pendidikan jasmani sekolah dasar pasca pandemi. *Journal of Sport, Physical Education, Organization, Recreation and Training, 7*(1), 125–136. https://doi.org/10.37058/sport.v7i1.6530

Van Doren, N., De Cocker, K., De Clerck, T., Vangilbergen, A., Vanderlinde, M., & Haerens, L. (2021). The relation between physical education teachers' (de-) motivating style, students' motivation, and students' physical activity: A multilevel approach. *International Journal of Environmental Research and Public Health, 18*(14), 7457. https://doi.org/10.3390/ijerph18147457

Vasconcellos, D., Parker, P., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., Ryan, R. M., & Lonsdale, C. (2019). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology, 112*(7), 1444–1469. https://doi.org/10.1037/edu0000420

Yang, C., Chen, R., Chen, X., & Lu, K.H. (2021). The Efficiency of Cooperative Learning in Physical Education on the Learning of Action Skills and Learning Motivation. *Frontiers in Psychology, 12*, 717528. https://doi.org/10.3389/fpsyg.2021.717528

Conflict of interest: no conflict of interest was reported by the authors.

© Copyright Generalitat de Catalunya (INEFC). This article is available at the URL https://www.revista-apunts.com/en/. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.0/