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Motivational Factors Predicting the Selection of Elective Physical Education: Prospective in High School Students

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A B S T R A C T

The choice of optional physical education could be conditioned by personal elements, such as goals or motivation, or contextual, such as perceived teaching behaviour. The aims of this study were to analyse the differences between students who chose (or not) Physical Education and to determine to what extent goal orientations, motivational regulations, and perceived teaching behaviors predict that decision. A sample of 756 adolescents from 14 public centres in Valencian Region enrolled in second grade of high school (*M*age 17.06, *SD* = 0.75), of which 422 were girls (55.8%) participated in the study. Students who voluntarily chose Physical Education presented a different motivational profile, scored higher in all approximation goals (and avoidance), intrinsic motivation, identified and introjected and lower in amotivation. They also showed a marked profile in the teaching styles perceived in the subject in the past (support for autonomy and structured). Finally, the factor that best predicted this choice was the participatory behavior perceived by the student (teaching style supporting autonomy), followed by the orientation of the goal of approximation-task, dominant behaviors (negative), and intrinsic regulation.

Los factores motivacionales que predicen la selección de Educación Física optativa: prospectiva en alumnado de bachillerato

Palabras clave:
Motivación
Adolescentes
Estilo docente
Metas de logro
Teoría de la autodeterminación

R E S U M E N

La elección de Educación Física optativa podría estar condicionada por las metas personales o la motivación del alumnado o por las conductas docentes percibidas. Los objetivos del trabajo han sido analizar las diferencias entre el alumnado que elige (o no) Educación Física y determinar en qué medida las orientaciones de meta, las regulaciones motivacionales y las conductas docentes percibidas predicen esa decisión. Participaron 756 adolescentes de 14 centros públicos de la Comunidad Valenciana que cursaban 2.º de Bachillerato (*M*edad = 17.06 años, *DT* = 0.75), de los cuales 422 eran chicas (55.8%). Aquellos que sí eligieron Educación Física presentaban un perfil diferenciado, es decir, puntuaban más alto en todas las metas de aproximación (y evitación), en regulación intrínseca, identificada e introyectada y más bajo en desmotivación. También mostraban un marcado perfil en los estilos docentes percibidos en la asignatura en el pasado (apoyo a la autonomía y estructurado). Finalmente, el factor que mejor predijo esta elección fue la conducta participativa percibida (estilo docente de apoyo a la autonomía), seguido de la orientación de la meta de aproximación-tarea, las conductas dominadoras (en negativo) y la regulación intrínseca.

In the recent curriculum organization of the Spanish education system (Real Decreto 217/2022, de 29 de marzo [Royal Decree 217/2022, of March 29]), it is observed that some subjects have fewer weekly teaching hours (e.g., Biology and Geology, Physical Education), while others become optional in more advanced courses of Compulsory Secondary Education or in the different modalities of High School (e.g., Economics, Music, Latin) (Real Decreto 243/2022, de 5 de abril [Royal Decree 243/2022, of April 5]). The fact that any subject becomes an optional subject raises the interest of researchers in understanding what variables may influence students to choose (or not) an optional subject over another.

The choice of an optional subject could be influenced by personal elements such as goals or motivation (Fernández-Río et al., 2023), or contextual factors, such as the teachers who have taught the subject and the teaching behaviors they have exhibited towards their students (Cheon et al., 2016). Therefore, established motivational theories such as the Achievement Goal Theory (Elliot et al., 2001) or Self-determination Theory (Ryan & Deci, 2020) could help explain why

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students choose a subject when it is optional. Unfortunately, there are few studies addressing how these motivational variables can predict the choice of optional subjects. To the knowledge of the authors, only one study (Gómez-Mármol, 2014) has addressed the reasons that lead to the choice of an optional subject (Physical Education) among 2nd year High School students. However, considering that the sample size was very small (therefore reducing its external validity) and that there was no in-depth analysis of which motivational variables may discriminate between students at this level who choose or do not choose this optional subject, new studies seem necessary.

One theory that could explain students' motivation towards one optional subject or another is the Achievement Goal Theory (AGT; Méndez-Giménez et al., 2014). The orientation towards one achievement goal or another will depend on various factors, including competence or ability and the social agents involved. The 3 x 2 AGT (Elliot et al., 2011) postulates a separate goal construct for each of the three standards used to evaluate competence: task, self, and others. On one hand, in a task-focused achievement goal orientation, the individual evaluates their competence based on whether the task is performed correctly or not. On the other hand, in an self-focused achievement goal orientation, the individual evaluates their competence based on self-established criteria (intrapersonal). Finally, in an other-focused achievement goal orientation, the individual evaluates their competence in relation to others (interpersonal or normative) (Méndez-Giménez et al., 2014). However, achievement goals can be differentiated by their valence. Thus, competence valence can be conceptualized either as success (approach), where regulation involves striving to advance or maintain this positive possibility, or as failure (avoidance), where regulation involves striving to avoid or stay away from this negative possibility. By crossing these two valence possibilities (approach, avoidance) with the three standards (task, self, others), a total of six achievement goals are outlined: task-approach, focused on acquiring task-based competence (e.g., "I will do it correctly"); self-approach, focused on acquiring ego-based competence (e.g., "I will do better than yesterday"); others-approach, based on acquiring competence based on others (e.g., "I will do better than them"); task-avoidance, focused on avoiding task-based incompetence (e.g., "I will avoid doing it incorrectly"); self-avoidance, based on avoiding ego-based incompetence (e.g., "I will avoid doing worse than yesterday"); and others-avoidance, focused on avoiding others-based incompetence (e.g., "I will avoid doing worse than them"). Thus, approach-based goals focus on success, promoting autonomy during classes (García-Romero et al., 2019), psychological well-being (Wei et al., 2020), or life satisfaction (García-Romero et al., 2022). In contrast, avoidance-based goals focus on failure, anxiety (Danthony et al., 2021), or psychological distress (Wei et al., 2020). In other words, regulating one's activity in relation to approach sustains enthusiasm and hope, while regulating it using avoidance leads to anxiety and stress (Pekrun et al., 2009).

Research on the Self-Determination Theory (SDT) has shown coherence in understanding the relationships between motivation and individuals' behavior, specifically in the educational field. Therefore, this theory could contribute, among other things, to understanding the reasons why students choose an optional subject in High School through their motivation towards it. Within SDT, the Goal Contents Theory (GCT), one of the six mini-theories that underpin it, states that the goals that justify an individual's motivation are essential for determining the quality of that motivation and subsequent behaviors (Deci & Ryan, 2000). The GCT distinguishes two types of goal content: intrinsic and extrinsic. Intrinsic goals stem from internal factors such as personal interests and enjoyment, evoking feelings of well-being, while extrinsic goals are based on external factors, for example, praise or recognition from others (Ryan & Deci, 2017). Some studies (Seghers et al., 2014; Sibley & Bergman, 2016) claim that goal content acts as an antecedent of motivational regulations, creating a viable means of predicting participation. Therefore, GCT could predict the choice of a subject in High School based on more intrinsic or more extrinsic goals. This is related to the theoretical foundations of the Organismic Integration Theory (OIT), another of the mini-theories that make up SDT, suggesting how different forms of motivational regulation influence individuals' behaviors (e.g., choosing a subject or not choosing it). Three types of motivation are distinguished: intrinsic motivation, based on the performance of an activity that is inherently satisfying (Deci & Ryan, 1980); extrinsic motivation, based on performing the activity to obtain external recognition or the means to achieve something; and amotivation, the lack or loss of motivation towards the activity. From a general perspective, and considering the existence of a continuum in students' motivation, OIT describes different subtypes of extrinsic motivation: some of them are more controlled and others more autonomous (Ryan & Deci, 2020). On the more controlled side, an individual may be motivated by rewards or external pressures, motives classified as external regulation. Following this, another type of extrinsic motivation within the controlled side is introjected regulation, whose behaviors are governed by internal pressure to achieve success and avoid anxiety, shame, or guilt from failure (focus on self-approval and approval from others is highly present). On the autonomous side of extrinsic motives, identified and integrated regulations can be found. The first term describes how individuals consciously accept the value of the activity. The second term, the most autonomous form of extrinsic motivation, implies that the subject not only recognizes and identifies with the value of the activity but also considers it consistent with other key interests and values. The most autonomous types of extrinsic motivation are more enduring than the controlled ones; people persist even in the absence of external supports because they are guided by that sense of value and purpose to act (Ryan & Deci, 2020).

The motivational regulations explained above can largely be determined by various antecedents or social agents. Among these, the figure of the teacher emerges as a determining element in students' motivation (Pérez-González et al., 2019). The teaching behaviors developed in the educational context, therefore, are going to be decisive, and thus it seems necessary to evaluate them in a detailed manner (Aelterman et al., 2019). The Circular Model (Circumplex Approach; Aelterman et al., 2019; Escriva-Boulley et al., 2021) establishes four teaching styles, each of which can be broken down into two teaching behaviors. Firstly, in the autonomy-supportive style the teacher seeks to understand students' interests and opinions with active decision-making. This can be achieved through participative behaviors (e.g., identifying students' interests to actively getting them involved in the process, making suggestions and suggesting improvements or changes during tasks) and attuning behaviors (e.g., empathetic behaviors accepting students' views of what happened in class, accepting expressions of negative affect, and providing reasons to students about why something specific is done). Secondly, the structured style is based on guiding and orienting students based on their abilities and promoting awareness of their progress and competence in tasks through guiding behaviors (e.g., helping to achieve goals, reflecting on errors, and guiding on where and how to improve) and clarifying behaviors (e.g., communicating the teacher's expectations accurately). Thirdly, the controlling style is based on rigidity and control, prescribing students what they must do, trying to make them behave and perform tasks in a prescriptive manner, without considering their opinion. Therefore, it is developed through demanding behaviors (e.g., demanding without adaptation to students, using a controlling tone and expressions of discipline such as "you must/have to do this"; using threats or punishments regularly) and domineering behaviors (e.g., repressing deviations from expectations, fostering feelings of guilt or shame when something is not achieved, using non-verbal language with gestures of disapproval, disappointment, or despair). Lastly, the chaotic style is developed with an attitude of "letting go" with passivity, permissiveness, and indifference, and behaviors of abandonment (e.g., after several

attempts the teacher gives up) or waiting (e.g., excessive delegation of responsibility to students with little planning and without teacher guidance, which can lead to work far from the initially set goals due to lack of supervision). Autonomy-supportive and structured styles and behaviors will develop adaptive consequences, while controlling and chaotic styles and behaviors will lead to the opposite (Haerens et al., 2016; Vasconcellos et al., 2020).

Given all the aforementioned, this study set the primary objective of analysing the disparities between students who opt for an elective PE and those who do not in the 2nd year of High School concerning various motivational variables. Based on this objective, the following research hypotheses were formulated:

*H*1: Considering the significance of the AGT (Elliot et al., 2011), we hypothesize that students who choose Physical Education will score higher on approach-based goals and lower on avoidance-based goals than students who do not choose that subject.

*H*2: Given the robustness of the Self-determination Theory (SDT; Ryan & Deci, 2020), we hypothesize that students who choose Physical Education will score higher on more autonomous regulations and lower on more controlled regulations and on amotivation than students who do not choose Physical Education.

*H*3: In line with previous studies (Gómez-Mármol, 2014; Shen, 2010), we hypothesize that students who choose Physical Education will score higher on teaching styles based on autonomy support and structured approaches, while students who do not choose Physical Education will score higher on controlling and chaotic teaching styles.

The second aim was to determine the discriminant utility of these variables to analyze to what extent each one predicts the decision to choose Physical Education as an elective subject or not. However, due to the lack of previous studies and the exploratory nature of the discriminant power of these variables, no prior hypotheses are established regarding the second aim.

Method

Participants

A total of 756 adolescents enrolled in High School 2nd year participated (mean age = 17.06 years, *SD* = 0.75), of whom 422 were female (55.8%), from 14 public schools in the Valencian Region, Spain. Of the total participants, 376 chose Physical Education (PE) (49.7%), and 380 did not choose PE (50.3%). The inclusion criteria for the schools were: 1) being public schools reporting to the Department of Education of the Valencian Region; and 2) offering High School with the PE line as a choice for the 2nd year. As for participants, they only needed to be officially enrolled during the academic year in one of the selected schools and participate voluntarily.

Instruments

Achievement Goals

Achievements goals were assessed with the 3 x 2 Achievement Goal Questionnaire in Physical Education (Méndez-Giménez et al., 2014), consisting of 24 items, starting by the sentence "In my Physical Education classes, my goal is to...", clustered into 6 factors: Task-approach (e.g., "… perform exercises and skills correctly"), Task-avoidance (e.g., "… avoid performing tasks in class poorly"), Self-approach (e.g., "… perform exercises better than I usually do"), Self-avoidance (e.g., "… avoid doing skills worse than I usually do"), Other-approach (e.g., "… outperform other students in completing tasks and skills"), and Other-avoidance (e.g., "… avoid doing exercises and tasks worse than other students"). Students must respond to the degree of agreement with each of these statements using a 5-point Likert scale ranging from 1 (*not true at all for me*) to 5 (*totally true for me*). A confirmatory factor analysis (CFA) yielded adequate fit indices for a six-factor structure, $\chi^2(237) = 634.02$, $p < .001$, CFI = .974, TLI = .970, RMSEA = .047, 90% CI [.043, .052]. McDonald's omega reliability values were .90, .85, .89, .88, .95, and .92, respectively.

Motivation towards Physical Exercise

The adapted and translated version of Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2) was used (Moreno-Murcia et al., 2007). Through 18 questions configured on a 5-point Likert scale (ranging from 1, *not true at all for me*, to 5, *totally true for me*), starting by the sentence "I work out because...", this instrument assesses five subtypes of motivation: intrinsic regulation (e.g., "… I think working out is fun"), identified regulation (e.g., "… I value the benefits of working out"), introjected regulation (e.g., "… I feel bad when I don't work out"), external regulation (e.g., "… other people tell me I should work out"), and amotivation (e.g., "I don't see why I should work out"). A confirmatory factor analysis yielded adequate fit indices for a five-factor structure, $\chi^2(125) = 478.91$, $p < .001$, CFI = .955, TLI = .945, RMSEA = .061, 90% CI [.055-.067]. McDonald's omega reliability values were .92, .84, .83, .79, and .86, respectively.

(De)motivating Teaching Styles in PE

The adapted and translated version of the Situations in School-Physical Education (SIS-PE) questionnaire for PE students was used (Burgueño et al., 2023). This instrument assesses four motivational teacher styles and two motivational teacher behaviors for each style: autonomy-supportive style (composed of participatory and attuning behaviors), structured style (composed of directive and clarifying behaviors), controlling style (composed of demanding and domineering behaviors), and chaotic style (composed of abandoned and waiting behaviors). To assess these teacher motivational styles and behaviors, 12 common situations that occur during PE classes are presented, and for each situation four ways of acting by the PE teacher are proposed. Students must respond to each way of acting by the PE teacher using a 7-point Likert scale ranging from 1 = *does not describe my teacher at all* to 7 = *describes my teacher very well*. An example of a situation would be disruptive student behaviors: "Some students misbehave and disrupt. Then the PE teacher...". Examples of the four teacher behaviors would be: a) "Tells them to get back to the task immediately, otherwise, there will be serious consequences" (demanding behavior); b) "Explains the reasons why they want them to behave properly. Then talks to them separately, listens carefully to how they see things" (attuning behavior); c) "Communicates the importance of effort and attitude in class" (clarifying behavior); d) "Lets it go, the teacher thinks it's too much effort to intervene to prevent this" (abandoned behavior). Following the procedures of previous studies using this instrument (Aelterman et al., 2019; Escriva-Boulley et al., 2021), a confirmatory factor analysis (CFA) was conducted for each pair of behaviors encompassing each of the four teacher motivational styles. The fit indices of the CFAs for each pair of behaviors specific to each teacher motivational style obtained adequate fit indices: autonomy-supportive style (i.e., participatory and attuning behaviors), $\chi^2(53) = 305.98$, $p < .001$, CFI = .935, TLI = .919, RMSEA = .079, 90% CI [.071-.088]; structured style (i.e., directive and clarifying behaviors), $\chi^2(53) = 105.39$, $p < .001$, CFI = .97, TLI = .968, RMSEA = .050, 90% CI [.040-.059]; controlling style (i.e., demanding and domineering behaviors), $\chi^2(53) = 251.62$, $p < .001$, CFI = .903, TLI = .906, RMSEA = .070, 90% CI [.062-.079]; and chaotic style (i.e., abandoned and waiting behaviors), $\chi^2(53) = 264.91$, $p < .001$, CFI = .938, TLI = .923, RMSEA = .073, 90% CI [.064-.082]. McDonald's

omega reliability values were adequate for participatory (.75), attuning (.82), directive (.88), clarifying (.69), demanding (.62), domineering (.65), abandoned (.87), and waiting (.72) behaviors, considering that some values are below the threshold of .70, but assuming that the number of items measuring these behaviors may be insufficient for reliability above this value (Dunn et al., 2014).

Physical Education Choice

This is a dichotomous variable in which students responded Yes or No to the following question: "Have you chosen to take Physical Education during 2nd year of Baccalaureate?".

Procedure

Firstly, the study obtained approval from the ethics committee of the University of Alicante (UA-20230504). Secondly, the project was explained to the involved schools, students, and their families to obtain their approval. Those willing to participate who were 18 years old or older signed a written consent, while those under 18 took home the consent for their parents or guardians to sign and return before data collection. The written consent included information about the study's objective (to collect information about the elective subjects selected in the last year of high school), that the data obtained would be kept anonymous and confidential (except for the participants' gender), that it would not affect students' grades, and that they could withdraw from the study at any time. Information was collected during the first two months (September and October) of the 2021-2022 academic year, when the decision about selecting elective subjects was recent for the students. The questionnaires were completed during a scheduled class period, individually, within a 15 to 20-minute time frame, in the absence of any teacher and supervised by a trained member of the research team.

Data Analysis

A descriptive analysis (mean and standard deviation) was conducted for the overall sample and for the two groups: students who chose PE and students who did not choose PE. Although the sample size allowed for the assumption of using parametric statistics, skewness, and kurtosis values, and the examination of normal probability plots (i.e., Q-Q plot) confirmed this assumption. Subsequently, a MANCOVA of all motivational variables (teachers' motivational behaviors in PE, goal orientation, and motivational regulations) was performed using gender and school as covariates to control for. Effect size was reported using partial eta squared (η_p^2) statistic, considering small effects (below .01), moderate effects (above .06), and large effects (above .14) (Field, 2017). Then, variables that showed significant differences in the MANCOVA were entered into a stepwise discriminant analysis, aiming to determine whether students who choose or do not choose the PE subject can be discriminated based on perceived motivational behaviors of their teacher, motivational orientation, or motivational regulations towards physical exercise.

Results

Table 1 displays the descriptive statistics of the entire sample and the two groups of students (those who choose PE and those who do not choose it). Firstly, a significant effect of choosing or not choosing PE on the set of variables studied is observed with a large effect size,

Table 1. Descriptive Statistics and Group Differences Analysis for All Study Variables

Variable	Entire Sample		Choose PE (n = 376)		Do not choose PE (n = 380)		$F(1, 752)$	Sig.	η_p^2
	Av	*SD*	Av	*SD*	Av	*SD*			
Goal orientations (range 1-5)									
Task-approach	3.95	0.90	4.25	0.69	3.67	0.98	81.40	< .001	.098
Task-avoidance	4.00	0.91	4.20	0.81	3.80	0.96	38.93	< .001	.049
Self-approach	3.90	0.93	4.16	0.73	3.64	1.02	60.46	< .001	.074
Self-avoidance	3.77	0.99	3.97	0.90	3.58	1.04	28.13	< .001	.036
Other-approach	2.84	1.32	3.04	1.33	2.64	1.28	7.49	.006	.010
Other-avoidance	3.19	1.24	3.40	1.22	2.97	1.21	15.76	< .001	.021
Motivational regulations (range 1-5)									
Instrinsic regulation	3.88	1.06	4.20	0.84	3.57	1.16	57.75	< .001	.071
Identified regulation	3.66	0.87	3.90	0.73	3.42	0.94	50.74	< .001	.063
Introjected regulation	2.70	1.20	2.89	1.23	2.52	1.15	16.36	< .001	.021
External regulation	1.54	0.75	1.49	0.72	1.58	0.79	2.87	.091	.004
Amotivation	1.54	0.83	1.39	0.70	1.68	0.91	26.86	< .001	.034
Motivational behaviors (range 1-7)									
Autonomy-supportive style	4.43	1.35	4.94	1.14	3.92	1.35	118.39	< .001	.136
Participative behaviors	4.22	1.54	4.77	1.32	3.66	1.55	107.15	< .001	.125
Attuning behaviors	4.54	1.36	5.03	1.17	4.05	1.37	103.01	< .001	.120
Structured style	5.02	1.18	5.36	1.02	4.68	1.22	65.55	< .001	.080
Guiding behaviors	4.97	1.36	5.38	1.16	4.56	1.43	70.35	< .001	.086
Claryfying behaviors	5.10	1.11	5.34	1.03	4.86	1.15	37.25	< .001	.047
Controlling style	4.11	0.92	4.12	0.93	4.11	0.92	0.01	.943	.000
Demanding behaviors	4.48	0.99	4.59	0.97	4.37	1.00	8.55	.004	.011
Domineering behaviors	3.60	1.21	3.47	1.26	3.73	1.15	10.36	.001	.014
Chaotic style	2.56	1.20	2.37	1.20	2.75	1.18	25.11	< .001	.032
Abandoned behaviors	2.58	1.32	2.35	1.32	2.80	1.29	26.58	< .001	.034
Waiting behaviors	2.54	1.29	2.41	1.30	2.68	1.27	11.85	.001	.016

Note. Av = average; *SD* = standard deviation; PE = Physical Education.
Source: Own elaboration.

Table 2. Stepwise Discriminant Analysis Values

Variable	Step	Standardized coefficient weight	Lambda	Exact *F*
Participative behaviors	1	.617	.871**	111.710**
Approach-task goal	2	.411	.821**	82.276**
Domineering behaviors	3	-.270	.809**	59.229**
Instrinsic regulation	4	.307	.797**	47.815**

Note. Source: Own elaboration.
**$p < .01$.

Wilks' lambda = .789, $F(19, 734) = 10.358$, $p < .001$, $\eta_p^2 = .211$. It is observed that students who choose PE in the second year of High School have significantly higher levels of participative, attuning, guiding, clarifying, and demanding teacher behaviors, as well as significantly lower levels of domineering, abandoning, and waiting behaviors. Regarding goal orientations, students who choose PE in High School second year show significantly higher levels in all goal orientations. Finally, in relation to motivational regulations, students who choose this subject show significantly higher levels in intrinsic, identified, and introjected regulations, while reporting significantly lower levels of amotivation than students who do not choose the PE subject.

The subsequent discriminant analysis (Table 2) aims to determine the linear combination of predictor variables that best classify cases into each of the groups (choose PE or do not choose PE). This stepwise discriminant analysis shows that the discriminant function is significant, Wilks' lambda = .797, $\chi^2(4) = 170.617$, $p < .001$, and that the four determinant variables, in order of discriminatory power, are perceived participative behaviors (.617), task-approach goal orientations (.411), domineering behaviors (-.270), and intrinsic regulation (.307).

Table 3 summarizes the results of group membership from the discriminant equation. Out of the 376 students who choose PE, 273 (72.6%) were correctly classified as "Yes," and out of the 380 who do not choose PE, 246 (64.7%) were correctly classified as "No." The overall percentage of correct classifications using the discriminant equation is 68.7%.

Table 3. Classification Results of Discriminant Analysis

Group	*n*	Prediction: Yes, *n* (%)	Prediction: No, *n* (%)
Choose PE	376	273 (72.6%)	103 (27.4%)
Do not choose PE	380	134 (35.3%)	246 (64.7%)

Note. 68.7% of original grouped cases classified correctly and 31.3% of grouped cases classified incorrectly.
Source: Own elaboration.

Discussion

The study of the variables that influence the choice of an optional subject throughout academic education is a topic that has not been sufficiently addressed by the literature. In this regard, this research aimed to firstly analyze the differences between students who choose or do not choose Physical Education as an optional subject in High School 2nd year concerning different motivational variables. As indicated in the introduction, the choice of an optional subject could be influenced by motivational aspects stemming from the individual themselves or from the personal experience associated with teaching behaviors applied by teachers responsible for teaching that subject in previous courses (Cheon et al., 2016).

Regarding the motivational variables of the students evaluated in the present study, the results show statistically significant differences in both theoretical planes, both in goal orientations (AGT) and motivational regulations (SDT). In other words, a distinct response pattern is observed in students who choose to study the subject of Physical Education (PE) and those who decide not to study it. On one hand, students who voluntarily choose the subject score higher on goals based on approach than those who do not choose it; that is, students who do choose PE attach great importance to setting goals related to their proper progression and successfully facing the tasks proposed in class, favoring their autonomy and competence (García-Romero et al., 2019). However, they also value highly outperforming their peers in personal competence comparison, gaining social recognition. However, it is interesting to note that they also score higher on avoidance-based goals. Despite focusing on success as described, they also focus their fears on possible failure in the three standards (task, self, others), more pronouncedly than those who do not choose the subject. One possible explanation could be that they would consider performing tasks incorrectly as proposed by the teacher or not progressing as expected (both individually and in comparison to others) as a reason for not passing a subject they have voluntarily chosen. This consequence would be attributed directly to them, considering it a negative aspect in their academic performance. Therefore, the first hypothesis (*H*1) is partially accepted, with further studies needed to delve into this topic.

Regarding motivational regulations, students who voluntarily choose to study PE as an optional subject in High School second year score higher on more autonomous motivations (intrinsic and identified regulation), in line with previous studies conducted on adolescents (Lodewyk & Pybus, 2013; Ntoumanis, 2005). Similar results were observed in a recent study conducted with university students, where intrinsic motives were more relevant than extrinsic ones when choosing access to university (Llanes-Ordóñez et al., 2020). These results would emphasize that the reasons for choosing (or not) a subject could be fundamentally based on intrinsic reasons (Burgueño et al., 2019; García-González et al., 2019; Vera-Lacárcel & Moreno-Murcia, 2016), related to enjoyment in the subject (Garcia-Bengoechea et al., 2018) or the benefits that the subject can bring for their integral development. Similarly, it seems logical that those who decide to study the subject, and who have shown higher autonomous motivation than those who do not choose to study that same subject, also score statistically lower in amotivation. This score would be markedly related to the boredom or anxiety experienced by these students (who do not choose PE) in their previous personal experience during classes in that subject (Ryan & Deci, 2020). Therefore, the second hypothesis (*H*2) is accepted.

Both achievement goals and motivational regulations shown by participants are closely related to the teaching styles used or perceived by the students themselves (Escriva-Boulley et al., 2021; García-González et al., 2019; Granero-Gallegos et al., 2021). The results of the present study support the idea advocated by SDT (Ryan & Deci, 2020), where it is evident that the style chosen by the teacher plays a fundamental role in fostering positive experiences in their students (Ntoumanis, 2005; Pérez-González et al., 2019). Students who choose the subject voluntarily perceive a more significantly motivating teaching style associated with autonomy support, linked to participatory and attuning behaviors (Pérez-González et al., 2019; Reeve, 2009), as well as a structured style, whose guiding and

attuning behaviors are dominant in order to build on the students' capabilities, fostering awareness of their progress (Aelterman et al., 2019). Consequently, students who do not choose the subject perceive a more significantly chaotic and demotivating teaching style, associated with abandoned and waiting behaviors on the part of the teacher and identified with highly controlled, restrictive, and chaotic environments (Soenens et al., 2012), thus justifying the refusal towards this subject (Haerens et al., 2016; Vasconcellos et al., 2020). In general terms, research based on SDT suggests that teachers who choose a motivational teaching style will encourage greater commitment and participation from their students (Van den Berghe et al., 2013). However, a teacher will foster amotivation in students and, consequently, low participation, if they choose to use a controlling style, which does not consider the interests of the students, or chaotic, where clear objectives and/or adequate guidance to achieve them are not established (Van Doren et al., 2021). Therefore, the third hypothesis (*H3*) is accepted.

But of all the variables analyzed in this paper, what weight does each of them have on the student's final decision to choose or not choose a subject? The second aim of the study was to determine the discriminant utility of the motivational variables in order to analyze to what extent each of them predicts the decision to choose or not choose PE as an optional subject. Descriptively, the variable that most reflected in the standardized coefficient was the perceived participative behaviors by students, included within the autonomy-supportive teaching style (Pérez-González et al., 2019; Reeve, 2009). Consistent with this result, Shen (2010) investigated the influence of perceived autonomy-supportive teaching style in a mandatory subject in secondary education (Physical Education) on the intention to voluntarily choose that subject in the future. Although this author did not differentiate between participative and attuning behaviors, he concluded that the perceived autonomy-supportive teaching style could increase future participation in the subject analyzed. On the other hand, the second variable that weighed most in the discriminant analysis of the present study was approach-task goals. From a holistic perspective, it seems that students first need to perceive teaching behaviors where they feel actively involved in the learning process (within an autonomy-supportive teaching style), which intrinsically will be related to their approach goals as a second factor (Pekrun et al., 2009). Within these approach goals, the results of the present study would indicate that completing tasks correctly is more important for students who choose the subject than comparing themselves with others or even with their own progress. This puts individualized teaching and formative assessment at the center of the debate, where students can have access to different tasks and levels, realistic and in line with the objectives established in the different curricula, and where all students have opportunities for success in executing them. Therefore, research suggests that a task-oriented climate leads to an excellent path towards optimal functioning because it fosters experiences of satisfaction and attenuates experiences of frustration (García-González et al., 2019). The teacher must have a wide range of adapted and well-planned possibilities (antagonistic to the controlling and chaotic style) in order to respond to the heterogeneity of the classroom. The third variable with the most weight in this analysis was the domineering behaviors within the controlling style, but with a negative prediction. Students who chose the subject needed to perceive low domineering behavior from the teacher, as controlling styles have been associated with negative outcomes such as passivity and boredom, stemming from challenging behaviors towards the teacher and disruptive behaviors on the part of the students (Haerens et al., 2016). Finally, the fourth variable with the most weight in the discriminant analysis was the intrinsic motivation of the student themselves, in line with the basis that supports SDT (Ryan & Deci, 2020). The literature is abundant in this regard (Vasconcellos et al., 2020) and shows how the intrinsic motivation of the student is closely related to enjoyment and commitment to the activity. Stimulating intrinsic reasons is achieved by creating teaching environments where responsibility and autonomy are given to the students in order to favor that personal satisfaction (Vera-Lacárcel & Moreno-Murcia, 2016), which is very necessary to maintain commitment and effort in the learning process (Ntoumanis, 2005).

However, the present study has some limitations. Firstly, its cross-sectional nature, which does not allow for the establishment of cause-effect relationships. Experimental or quasi-experimental studies seem necessary to further investigate the discovered connections. Secondly, the participants all belong to the same region. Studies with samples from different parts of the country would be necessary to generalize the results. Finally, a specific subject was focused on. Studies with other subjects or comparing several subjects would be necessary to have a better understanding of what happens.

In conclusion, this research supports the foundations of AGT and SDT as theoretical bases, as students who chose to study a subject voluntarily (in this case, Physical Education in High School 2nd year) presented a differentiated motivational profile from those students who did not choose it. It has been evidenced that the motivational variables of AGT, SDT, and the study of teaching behaviors experienced by students are capable of discriminating between students who choose or do not choose an optional subject in High School 2nd year.

As a practical implication, it is suggested to teaching professionals to develop in students a motivational profile linked to approach goals, giving importance to individualized teaching styles and, therefore, to formative assessment, in order to establish proper progression in successfully achieving the proposed tasks, thus reinforcing their perception of competence. Additionally, the teacher should not forget the importance of students' intrinsic motivation associated with enjoyment (and non-boredom) in the subject to promote the choice of this subject in the future, with positive and meaningful experiences such as knowing students' interests and applying the use of participatory teaching styles with active methodologies where positive results have already been noted: cooperative learning (Fernández-Río et al., 2017), gamified (Sotos-Martínez et al., 2024; Sotos-Martínez et al., 2023a, 2023b), or game-based (Hernández-Rubio et al., 2023), among others. Furthermore, the use of autonomy-supportive teaching behaviors and structured style, as well as avoiding controlling and chaotic behaviors, also seems to favor that students choose this subject in the future. Therefore, it is necessary for teachers to know the motivational profile of their students, as well as to become aware of the teaching behaviors they develop in the classroom to favor the motivational process of their students, leading to greater commitment to the subject that ultimately ensures their future participation in it.

Conflict of Interest

The authors of this article declare no conflict of interest.

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