Article

Perceptual and Motor Skills
2024, Vol. 0(0) 1–22

DOI: 10.1177/00315125241242147
journals.sagepub.com/home/pms
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Motivational Orientation, Boredom and Fun in Physical Education: The Mediation Role of Self-Esteem and Motor Self-Efficacy

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Abstract

Adolescents who enjoy physical education (PE) classes are more likely to be active during out-of-school hours. Similarly, achievement goal theory suggests that task-oriented motivation is associated with higher levels of reported fun during PE classes. In contrast, ego-oriented motivation has been related to boredom in class, but some self-perceptions (e.g., self-esteem or motoric self-efficacy) may modify this relationship and are important for physical activity. Our aim in this paper was to analyze the relationships between motivational orientation and fun and boredom in PE classes by assessing the mediating effects of self-esteem and self-efficacy. We surveyed 478 teenagers between 13 and 18 years of age (M = 14.57; SD = 1.15) with the Task and Ego Orientation in Sport Questionnaire (TEOSQ), the Rosenberg Self-Esteem Scale (RSE), the Motor Self-Efficacy Scale (MSES), and the Intrinsic Satisfaction in Sport Scale (SSI-EF). We used a structural equation model to evaluate relationships between these variables of interest. We found a positive relationship between ego orientation and

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boredom and between task orientation and fun; and we found a negative relationship between task orientation and boredom in PE classes. Importantly, we observed indirect effects from self-esteem and motoric self-efficacy in the relationships between motivational orientation and boredom and fun in PE. These results highlight the importance of students' motivational orientations in PE classes and illustrate that self-perception of self-esteem and motoric self-efficacy can mediate these relationships.

Keywords
physical education, self-esteem, motor self-efficacy, lifestyle

Introduction

Getting students to enjoy themselves should be a main objective in Physical Education (PE) classes, not only because it makes schoolwork more fun, but also because this approach better promotes healthy lifestyle habits. Several investigators have shown that having fun in class can lead students to practice physical activity (PA) in their free time and to acquire a healthier lifestyle (Alexandr et al., 2016). Sedentary lifestyles are a global concern, evoking numerous political and social actions to avoid them, especially during school ages of childhood and adolescence (Guthold et al., 2018). An increase in sedentary behavior has spread through many countries and requires urgent measures (Bull et al., 2020). Specifically, the rates of obesity and other cardiovascular diseases in young people have grown alarmingly, with Spain at the forefront of this trend (Rupérez et al., 2018) and with adolescents generally less active in their free time than in earlier periods (Trigueros et al., 2019).

It is important to know what factors may be associated with student perceptions that PE classes are either satisfactory/enjoyable or boring. Fun is a pleasant emotion, conceived as a positive state of affection that represents such feelings as pleasure and enjoyment during physical-sports activities (Moore et al., 2009). Experiencing fun increases students' sense of well-being in the classroom (Gómez Rijo, 2013), while boredom is an unpleasant emotion that diminishes PA (Min & Kawabata, 2022). It is important to create positive and rewarding experiences in PE classes to provoke increased motivation and commitment to other physical exercise and to avoid inactive leisure time habits (Biolcati, et al., 2018).

Motivation is a determinant of behavior and is essential for promoting healthy lifestyles (Knittle et al., 2018). One of the most relevant current theoretical frameworks to explain motivation and the development of physically active behaviors is Achievement Goal Theory (AGT) (Duda & Nicholls, 1992; Nicholls, 1984). According to AGT, motivation is analyzed in two perspectives: dispositional and situational. Situational motivation is related to the motivational climate created by significant others, while dispositional motivation is related to one's own orientation (Rodrigues et al., 2020). At the dispositional level (motivational orientation),

individuals can be task-oriented (in learning) and focus their behaviour on improving their personal skills. From this ego-oriented (performance) motivation, people focus their behaviour on results (Cid et al., 2019). In this way, the practice of PA may be motivated towards the task or one's ego (Ames, 1984; Nicholls, 1984), and that will determine one's perceptions of success and competence (Tomczak et al., 2020). In a task-orientation (Nicholls, 1984), students perceive physical practice as an activity to strengthen cooperative skills, social responsibility, and intrinsic motivation, thereby generating positive affect (Ntoumanis & Biddle, 1999; Syrmpas & Bekiari, 2018). This would be expected to promote greater effort and long-term adherence to these types of tasks out of an increased interest in learning, making an effort, and in improving (Leisterer & Jekauc, 2019; Parish & Treasure, 2003).

On the other hand, ego-oriented students (Tomczak et al., 2020) define success by the ability to perform better than others. Superseding others' performances are the main source of motivation to perform. In this orientation, students tend to compare their level of performance with that of others (Jaakkola, et al., 2016). They perceive the practice of PA and exercise as a source of recognition and social status, and as a means of increasing popularity (Leisterer & Jekauc, 2019; Parish & Treasure, 2003). Previous studies have highlighted that task-oriented students experience greater fun and flow states than do ego-oriented students (Duda & Nicholls, 1992; Jackman et al., 2021; Ntoumanis et al., 2009). Previous investigators demonstrated a positive association between ego-orientated motivation and boredom (Baena-Extremera & Granero-Gallegos, 2015; Min & Kawabata, 2022). Thus, PE teachers should foster task orientated motivations (White et al., 2021).

There are other psychological variables that may modify these relationships, such as the perception of self-esteem and self-efficacy. Self-esteem is an evaluation that people make of themselves (Butler & Gasson, 2005). Branden (2011) added that it is the essential disposition needed to face basic life challenges and feel worthy of happiness. Several investigators (e.g., Schmalz et al., 2007; Schneider et al., 2008) have shown that teenagers with higher self-esteem approach physical exercise positively and regularly, while those with lower self-esteem tend to have less active physical lives and incur a higher risk of acquiring unhealthy habits and poor mental health (Orth, et al., 2010). Given the impact that self-esteem has on the practice of physical exercise, self-esteem should be considered when analyzing fun or boredom in PE classes.

Self-efficacy is another essential variable that stems from Bandura's Social Cognitive Theory (Bandura, 1986). Self-efficacy is defined as a personal belief in one's abilities to successfully perform a task and achieve the desired result (Bandura, 1997). Consequently, people with higher self-efficacy will be more committed to tasks, will persist longer to achieve desirable results, and will have higher levels of self-satisfaction (Bandura, 1997). More specifically, motor self-efficacy is the perception or feeling of competence that people possess for effectively managing situations related to PA (Hernandez & Garoz, 2007). Thus, if students have higher motor self-efficacy, they will better commit to achievement in PE classes. In fact, researchers have found

positive associations between students' perceptions of motor self-efficacy and fun in PE classes (Fraile et al., 2019).

When researchers have analyzed self-esteem and self-efficacy in adolescents in the school setting, they have shown that these self-perceptions, together with motivational factors, contribute to higher satisfaction and academic performance (Scherrer & Preckel, 2019). In addition, high levels of self-esteem and self-confidence allow teenagers to be more confident and positive in approaching new situations (Mikkelsen et al., 2020). Previous researchers may have ignored or incompletely considered interrelationships between motivational variables and self-related judgments of self-esteem and self-efficacy when analyzing whether students experience fun or boredom in PE classes. For this reason, in this study, we tested whether there may be a significant mediating effect of self-esteem and self-efficacy on the relationship between task versus ego motivational orientations and fun or boredom.

Present Study

Previous investigators analyzed fun and boredom in relation to PE lessons in the Spanish context (e.g., Castillo et al., 2020; Morales-Sánchez et al., 2021) and observed the specific relationship between the type of motivation and self-perceptions such as self-efficacy or self-concept in students' fun. Unfortunately, however, these investigators did not apply a complete theoretical model in which motivational variables, self-esteem, and self-efficacy were included. They only evaluated these factors separately or in combination with other factors. Certain other investigators have focused on participants' self-perceptions, but omitted motivational issues (Doménech-Betoret et al., 2017; Fraile et al., 2019). Others analyzed motivational variables but omitted a study of self-efficacy or self-esteem (Fabra et al., 2021; Sevil et al., 2014).

Since perceptions of competence and other personal attributions may be essential to explaining an individual's level of motivation and the influence of their attitudes on a task performed (Bandura, 1997; Nicholls, 1984), we considered it pivotal to include self-efficacy perceptions in our explanatory model. It is crucial to assess this aspect, because analyzing only the relationships between motivational orientation and fun in PE classes may lead to an incomplete understanding of how we might positively influence long-term healthy lifestyles in PE students. In the PE context, in addition to general self-esteem, motoric self-efficacy is apt to be highly relevant. Additionally, the students' gender and age are important and not fully understood in their relationship to motivation and PE boredom and fun (Huhtiniemi et al., 2019).

In relation to gender, previous researchers have observed differences between boys and girls in factors such as their level of physical practice performed and their motivational level or satisfaction in physical practice contexts (Babic et al., 2014; Granero-Gallegos et al., 2012). However, it is not clear whether these differences are biologically mediated or caused by cultural issues such as the activities children engage in during their free time or the experience of physical practice. For this reason, we considered it essential to perform an invariance analysis to determine whether the theoretical model

is robust and not gender biased. There may also be age-related instability of self-esteem and self-efficacy throughout adolescence (Bertills et al., 2018; Biddle et al., 2019). As these self-perceptions fluctuate over time, especially in a period as complex as adolescence (Monteiro et al., 2021), we also conducted invariance analysis between age groups (youngers ≤14 years old vs. elders >14 years old) s.

Our aim in this study was to explore the relationship between motivational orientation (ego vs. task) and fun or boredom in PE classes, while also assessing the mediating effects that self-esteem and self-efficacy could cause and testing for gender and age invariance in a theoretical explanatory model of these variables. Our hypothesized model is shown in Figure 1, indicating the positive or negative value of the relationships we expected to find. We also expected these relationships tobe valid for both boys and girls and for all of two different age groups (≤14 years old and >14 years old).

Method

Participants

Participants in this research were 478 adolescents (236 boys, 242 girls) aged 13–18 years (M = 14.57, SD = 1.15). They were in secondary education in Jaén (Spain) where PE is a compulsory subject in all grades, with two hours weekly class time. All participants attended class regularly. Our exclusion criteria were: (a) not attending class frequently; (b) showing difficulty understanding the research questions; (c) having had some injury in recent weeks; and (d) having recently joined the school. To demonstrate

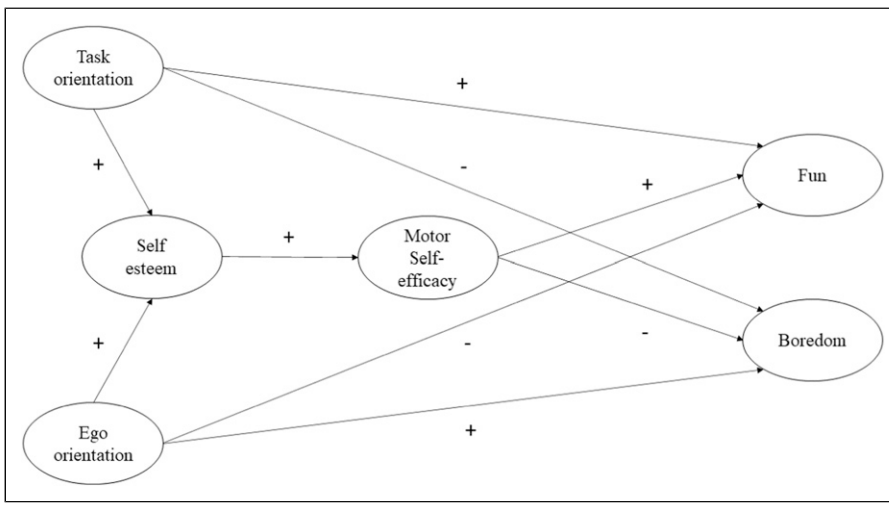

Figure 1. Hypothesized Structural Model.

that this model was structurally invariant and that it could be replicated in groups with different characteristics, we divided the participant sample into two groups by sex (boys vs. girls) and two groups by age (≤14 years old vs. > 14 years old); Spanish grade (i.e., 12–14 years old in 1st and 2nd years of secondary school; 15–18 years old in 3rd and 4th years of secondary school and 1st and 2nd years of high school).

Ethical Considerations

Throughout the research, we respected the Helsinki declaration, and we obtained prior approval to conduct the study from the ethics committee of the University of Málaga. We requested permission to approach parents from the schools' management team and from the PE teachers. First, we contacted parents by phone call or email to obtain their interest in hearing more about the study. Next, we provided them with the details of the investigation. Then, we obtained their informed consent. We also obtained informed assent from the students, making clear that their participation was voluntary and anonymous.

Measurement Instruments

We used the **Ego and Task Orientation Questionnaire (TEOSQ)** (Duda & Nicholls, 1992) in its Spanish version as it is often used in PE classes (Balaguer, et al., 1996). This measure consists of 13 items and two factors that assess students' tendencies towards an ego motivation orientation (6 items, e.g. "When others can't do it as well as me") or a task motivation orientation (7 items, e.g. "I feel that a skill I have learned works") in the context of PE. This instrument uses a 5-point Likert-type response scale, with item scores ranging from strongly disagree (1) to strongly agree (5). For the present investigation, our internal consistency analyses (Cronbach's alpha) offered values of .84 for task orientation factor and .88 for ego orientation among our participants.

We used the **Rosenberg Self-Esteem Scale (RSE) (**Atienza, et al., 2000; Rosenberg, 1965) to measure our participants' self-esteem. This scale analyzes the respondent's global attitude, favorable or unfavorable, toward the self (Rosenberg, 1965). It consists of 10 items and two factors (positive and negative self-esteem). For this study, we used the positive self-esteem dimension, consisting of five items (e.g., "On the whole, I am satisfied with myself"). Items were answered using a Likert-type scale from 1 (Strongly disagree) to 4 (Strongly agree). Our internal consistency analysis (Cronbach's alpha) gave this instrument a value of .85 for our participants.

We used the **Motor Self-Efficacy Scale (MSES)** (Hernández-Álvarez et al., 2011), adapted for the motor domain from the Baessler y Schwarcer (1996) General Self-Efficacy Scale (GSE)**.** This instrument analyzes the respondent's personal perception of competence to cope with motor tasks. It consists of 10 items (e.g. "In PE classes I can solve difficult tasks if I try hard enough") and a single factor, with items answered using a Likert-type scale from 1 (strongly disagree) to 4 (strongly agree). Our internal consistency analysis (Cronbach's alpha) gave a value of .88 for our participants.

We used the **Sport Satisfaction Instrument (SSI-PE)** (Duda & Nicholls, 1992) as adapted to PE in the Spanish version from the original Sport Satisfaction Instrument (Baena-Extremera et al., 2012; Balaguer et al., 1997) to measure participants' affective responses to PE**.** This scale measures intrinsic satisfaction in an activity through eight items and two factors: (i) satisfaction/fun (5 items, e.g. "I usually have enjoyment in the PE classes") and (ii) boredom (3 items, e.g. "In PE, I usually wish the class would end quickly"), with items answered by Likert-type scales from 1 (do not agree at all) to 4 (strongly agree). Our internal consistency analyses (Cronbach's alpha) gave values of .87 for the satisfaction/fun factor and .73 for boredom for our participants.

Procedure

As noted, participants were from four schools in Jaén (Spain). All were from similar socioeconomic levels and were enrolled in the same school curriculum. The questionnaires were administered at the beginning of May so that the students' attitudes and perceptions toward PE were already established. The data were collected in PE class, and the students completed the questionnaires in about 40 minutes in the presence of the PE teacher. A researcher from our team explained to the students in detail how the questionnaires were to be completed, and they answered any questions that arose.

Data Analysis

We analyzed and reported means, standard deviations, and bivariate correlations of all variables. To test the model, we performed a two-step maximum likelihood approach (Kline, 2016) using IBM SPSS Amos v.27 software. First, we conducted a confirmatory factor analysis (CFA) to analyze the psychometric properties of the presented model. We used composite reliability (Raykov, 1997) to evaluate the internal consistency, considering .70 as the cut-off value (Hair et al., 2018), and we calculated average variance extracted (AVE) to analyze convergent validity (Hair et al., 2018). We determined discriminant validity when the squared correlations between the constructs and any other were lower than the AVE (Fornell & Larcker, 1981). Secondly, we performed structural equation modeling (SEM) to test the relationships among the study variables. Standardized direct and indirect effects were analyzed, considering coefficients to be significant if the 95% Confidence Intervals (CI) did not include zero (Williams & Mackinnon, 2008). We used Boot-strap resampling (1000 samples) considering a bias corrected 95% CI to assess the significance of the direct and indirect effects. For the CFA and SEM, we used the following indices: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Standard Root Mean Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA) with its Confidence Interval (CI: 90%). For these indices, scores of CFI and TLI $\geq$0.90, SRMR and RMSEA $\leq$0.8 were considered as acceptable (Byrne, 2016; Hair et al., 2019; Marsh et al., 2004).

Mediation Analysis. We used serial mediation analyses to evaluate relationships among the constructs (Hayes, 2018), using SPSS PROCESS v.3.5 software (model 6 – with two serial mediators). The model 6 allowed control over the indirect effects of each mediator while controlling other variables (i.e., all variables included in the model), also permitting independent mediator effects analysis, and providing regression coefficients for the causal steps of the specified indirect effects. We used bootstrap (5000 samples) anlysis (Hayes, 2018; Williams & Mackinnon, 2008).

Multigroup Analysis. We conducted a SEM multigroup analysis to demonstrate that the hypothesized model could be replicated in groups with different characteristics - in this case between sex and age (Byrne, 2016). Therefore, we followed the recommendations of Cheung and Rensvold (2002) and Byrne (2016): (i) the SEM model should provide an acceptable fit in each group; (ii) the subsequent invariance types (i.e., unconstrained model; measurement weights; structural weights; measurement intercepts, structural residuals, and measurement residuals) should be respected. Invariance standards were assessed via the differences in Comparative Fit Index (ΔCFI<.01), as suggested by Cheung and Rensvold (2002). The analysis was performed with AMOS v.27.0 software.

Results

Preliminary Analysis

We used Full Information robust Maximum Likelihood (FIML) to manage the small amount of missing data (missing at random = 2%) (Enders, 2010). Then, we analyzed the descriptive statistics and bivariate correlations. The Skewness (−2 to +2) and Kurtosis (−7 to +7) of the data distribution indicated no deviations from univariate normality (Hair et al., 2018). However, as the normalized estimate of Mardia's coefficient of multivariate kurtosis was greater than 5.0, we used the Bollen-Stine bootstrap on 2000 samples for analysis (Nevitt & Hancock, 2001).

Table 1 shows the descriptive statistics, composite reliability coefficients, average variance extracted, and latent correlations for these data. Skewness and kurtosis showed that the data comprised a normal distribution. Also, composite reliability coefficients had good internal consistency (>0.70). Related to latent correlations, all variables were statistically correlated. Most of the relationships were positive, except those between boredom with task orientation, self-esteem, motor self-efficacy and fun.

The analysis of measurement model included the factors task-orientation, self-esteem, motor self-efficacy, fun and boredom variables, and this model showed an acceptable fit to the data: χ^2 (579) = 1357.88; B-Sp< .001; CFI= .91; TLI = .90; SRMR = .059; RMSEA = .053 90%CI [.036, .052]. The CR coefficients indicated scores above 0.70, showing an adequate internal consistency. For convergent validity, all factors presented scores above 0.50, except task orientation and motor self-efficacy. In addition, considering the squared correlations and AVE scores, all factors

Table 1. Descriptive Statistics, Composite Reliability Coefficients, Average Variance Extracted, and Latent Correlations.

Variables	*M*	*SD*	S	K	CR	AVE	1	2	3	4	5
1. Ego orientation	2.75	1.03	.32	−.49	.89	.56	-				
2. Task orientation	4.17	.69	−1.22	1.66	.85	.44	.18**	-			
3. Self esteem	3.27	.67	−1.14	1.01	.85	.54	.29**	.37**	-		
4. Motor self-efficacy	3.15	.53	−.52	.47	.88	.44	.36**	.47**	. 78**	-	
5. Fun	3.43	.64	−1.25	1.02	.87	.58	.19**	.52**	.57**	.59**	-
6. Boredom	1.79	.79	1.04	.31	.76	.53	.13*	−.28**	−.24**	−.17*	−.71**

demonstrated adequate discriminant validity since the squared correlations of each latent variable were lower than AVE scores in each latent variable, except between self-esteem and motor self-efficacy. Therefore, these results provided preliminary support for conducting a regression model and analyzing the direct and indirect effects. The results showed an acceptable fit to the data in all samples under analysis: general sample (n = 478): χ^2 (583) = 1406.02; B-S $p < .001$; CFI= .90; TLI = .90; SRMR = .062; RMSEA = .054 90%CI [.051, .058]; boys sample (n = 236): $\chi 2$ (583) = 1074.02; B-S $p < .001$; CFI= .92; TLI = .91; SRMR = .071; RMSEA = .061 90%CI [.054, .065]; girls sample (n = 242): $\chi 2$ (583) = 1139.42; B-S $p < .001$; CFI= .91; TLI = .90; SRMR = .077 RMSEA = .061 90%CI [.054, .065]; ≤14 years old sample (n = 249): $\chi 2$ (583) = 1136.07; B-S $p < .001$; CFI= .92; TLI = .91; SRMR = .072; RMSEA = .062 90%CI [.056, .067]; >14 years old sample (n = 229) = $\chi 2$ (583) = 1057.69; B-S $p < .001$; CFI= .93; TLI = .92; SRMR = .079; RMSEA = .060 90%CI [.054, .065].

Multigroup Analysis

Results showed that the SEM model was invariant between both sex (male and female) and age (≤14 years old and >14 years old), since these invariance assumptions were met (see Table 2). Therefore, all factor, structural paths, factor covariances, factor residual variances, and measurement error variances were operating equivalently between genders (ΔCFI<.01).

Direct and Indirect Effects

Since the structural model revealed an adequate fit to the data in all the samples under analysis, and the multigroup analysis indicated that the model was invariant, we performed direct and indirect paths on the general sample. These results showed the following direct effects (Figure 2): (a) ego orientation was positively associated with

Table 2. Goodness-of-Fit Indeces for the Invariance of the Structural Model Between Participants' Gender and Age Groups.

Model	χ^2	df	$\Delta\chi^2$	Δdf	*p*	CFI	ΔCFI
Boys' versus girls							
UM	2213.431	1166	-	-	-	.917	-
MW	2273.009	1196	59.578	30	.001	.914	.003
SM	2284.825	1205	71.394	39	.001	.913	.004
MI	2300.948	1208	87.517	42	<.001	.912	.005
SR	2347.699	1213	134.268	47	<.001	.910	.007
MR	2429.026	1249	115.595	83	<.001	.908	.009
≤14 years versus > 14 years							
UM	2193.771	1166	-	-	-	.928	-
MW	2260.262	1196	66.491	30	<.001	.924	.004
SM	2271.353	1205	77.582	39	<.001	.923	.005
MI	2281.776	1208	88.004	42	<.001	.923	.005
SR	2293.452	1213	99.680	47	<.001	.922	.006
MR	238.799	1249	191.028	83	<.001	.919	.009

Note. χ^2, Chi-square; $\Delta\chi^2$, differences in value of chi-square; Δdf, differences in degrees of freedom; p, level of significance; CFI, comparative fit index; ΔCFI, differences in the value of the comparative fit index; UM, unconstrained model; MW, measurement weights; SM, structural weights; MI, measurement intercepts; SR, structural residuals; MR: measurement residuals.

both self-esteem and boredom; (b) task orientation was positively associated with both self-esteem and fun, and negatively associated with boredom; (c) self-esteem was positively associated with motor self-efficacy; and (d) motor self-efficacy was positively associated with fun.

Related to indirect effects, the analysis showed the following effects (Table 3): (a) ego orientation had a positive and indirect effect on self-efficacy and fun, and a negative effect on boredom; (b) task orientation had a positive and indirect effect on self-efficacy and fun, and a negative effect on boredom; and (c) self-esteem had a positive and indirect effect on fun.

Mediation Analysis

Serial mediation of self-esteem and self-efficacy in the associations between ego-orientation and task orientation and boredom and fun are presented in Figure 3(a)–(d). Results from Figure 3(a) showed a total mediation since the indirect effect was higher than the direct effect. In turn, Figure 3(b) exhibited a negative partial mediation, because the indirect effect annulled part of the direct effect. Regarding Figure 3(c) a positive partial mediation appeared. Although the positive indirect effect observed did not annul the total direct effect. Finally, in Figure 3(d), no mediation effect was observed since the indirect effect was not significant. All in all,

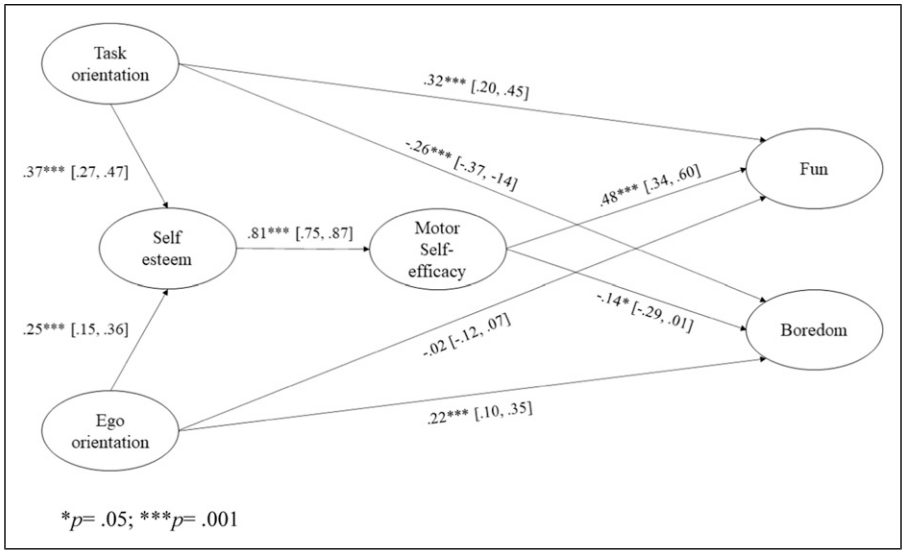

Figure 2. Direct Effect Coefficients of the Structural Equation Model.

Table 3. Indirect Effect Coefficients.

				95% CI	
	p	β	SE	LB	BU
Ego orientation → self esteem → motor self-efficacy	.001	.21	.05	.12	.30
Ego orientation → self esteem → motor self-efficacy → boredom	.03	−.03	.02	−.07	−.01
Ego orientation → self esteem → motor self-efficacy → fun	<.001	.10	.03	.06	.16
Task orientation → self esteem → motor self-efficacy	.001	.30	.05	.22	.39
Task orientation → self esteem → motor self-efficacy → boredom	.04	−.04	.02	−.09	−.01
Task orientation → self esteem → motor self-efficacy → fun	.001	.14	.03	.09	.21
Self esteem → motor self-efficacy → boredom	.50	−.12	.06	−.23	−.01
Self esteem → motor self-efficacy → fun	.001	.39	.06	.26	.50

all the paths across ego and task-orientation motivation, self-esteem, self-efficacy and boredom and fun were significant, except for the association between ego-orientation and fun in Figure 3(a). In addition, the mediator's self-esteem and self-efficacy explained 18%, 16%, 46% and 22% of the variance for models presented in Figure 3(a), (b), (c), and (d), respectively.

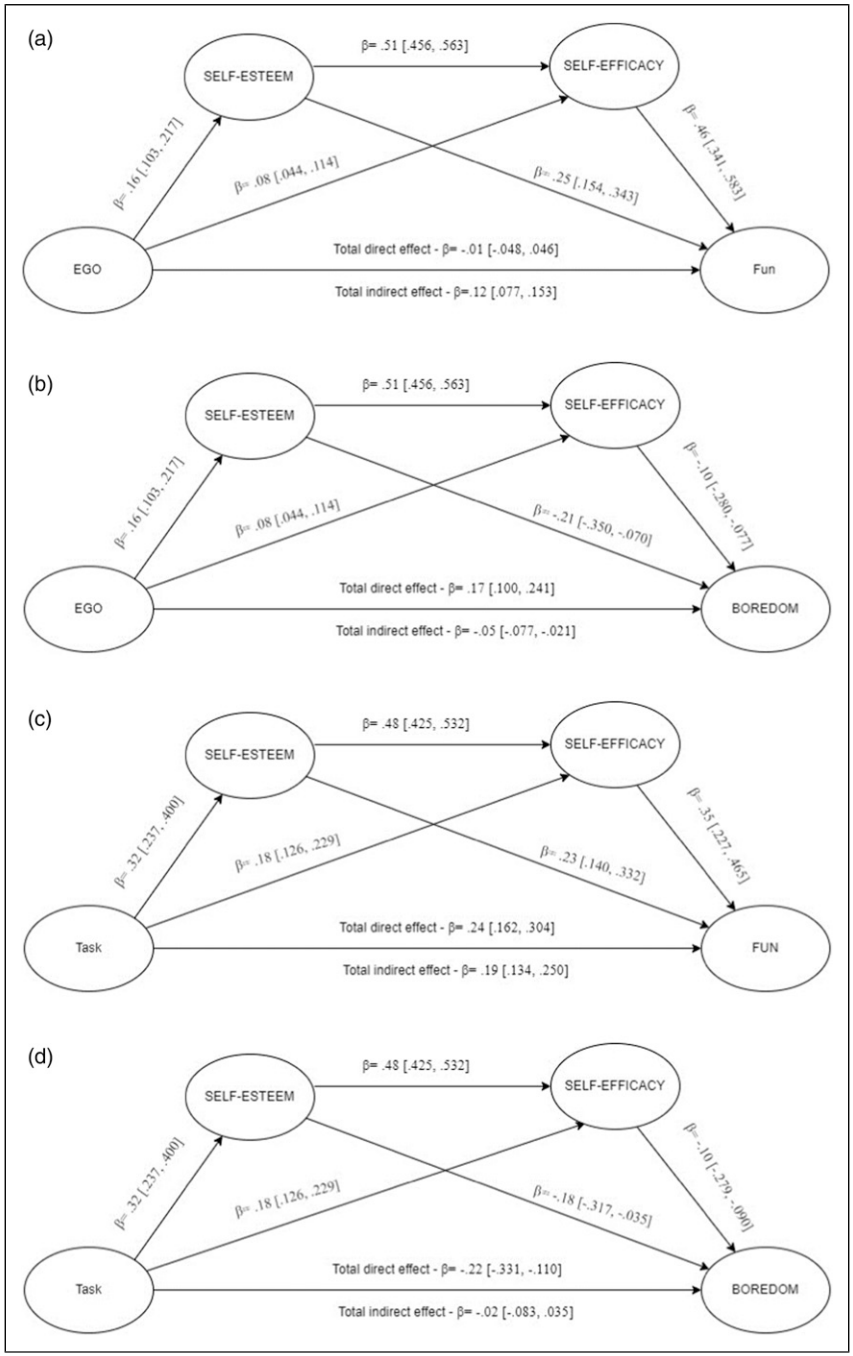

Figure 3. (a) Serial Mediation of Self-Esteem and Self-Efficacy in the Interaction between Ego-Orientation and Fun. (b) Serial Mediation of Self-Esteem and Self-Efficacy in the Interaction between Ego-Orientation and Boredom. (c) Serial Mediation of Self-Esteem and Self-Efficacy in the Interaction between Task Orientation and Fun. and (d) Serial Mediation of Self-Esteem and Self-Efficacy in the Interaction between Task Orientation and Boredom.

Discussion

Our aim in this study was to explore the relationships between motivational orientations (ego vs. task-orientation) and fun and boredom of adolescents in PE classes, while assessing the mediation effects of self-esteem and motor self-efficacy. In addition, we analyzed the stability of the proposed model through multigroup analyses between gender (boys vs. girls) and age (≤14 years old vs. > 14 years old). Our results revealed a statistically significant and positive association between ego-oriented motivation and boredom in PE classes, while task-oriented motivation was positively associated with fun and negatively associated with boredom. Likewise, positive relationships were found between ego and task orientations and self-perceived self-esteem, and between self-esteem and motor self-efficacy.

Our structural equation analyses showed direct effects between the proposed variables of the model. Specifically, we found that, when students showed a higher task motivation, they also showed higher levels of fun and lower levels of boredom during PE classes. In contrast, their higher ego motivation were associated with boredom during the class. These results are in line with previous research that found task-oriented motivation to be associated with higher levels of fun and satisfaction with the practiced activity in the context of physical-sport activity, just as ego-oriented motivation was more closely associated to boredom (Baena-Extremera & Granero-Gallegos, 2015; Cecchini et al., 2005; Fraile-García et al., 2019; Jackman et al., 2021; Min & Kawabata, 2022).

These results are also congruent with other studies in the context of PE classes (Duda et al., 1992; Granero-Gallegos et al., 2012; Kalaja et al., 2009). Among possible reasons for these findings, when students orientate toward the task, they focus on elements that are more intrinsically linked to the physical practice itself, participating in the proposed exercises to have fun and enjoy themselves. However, when their motivation is ego-oriented, they place a greater emphasis on winning and doing better than others, increasing the pressure to do well and placing higher demands on competence. An ego-oriented motivation usually requires high levels of competitiveness which are not always emphasized in learning-oriented PE classes, perhaps resulting in frustration for the participant (García-González et al., 2019).

Our structural equation model highlighted statistically significant indirect effects between ego and task-oriented motivation and boredom and fun, as mediated by self-esteem and motor self-efficacy. To explore these effects further, we conducted mediation analyses. Self-esteem and motor self-efficacy had a positive and statistically significant relationship with fun in PE, and a negative association with boredom, meaning that these variables mediated the initial relationships discovered between ego/task orientation and fun/boredom. For instance, the direct relationship between ego-orientation and fun was not significant, but it became positive and statistically significant when self-esteem and motor self-efficacy were included in the analyses. In addition, the relationship between ego-orientation and boredom became negatively associated only when self-esteem and motor self-efficacy were incorporated into the

explanatory pathway. These effects reflect that students with ego-oriented motivations, who were more likely to become bored or frustrated in class, would not show such feelings if they had adequate self-esteem motoric self-efficacy. They were then able to adapt better to situations requiring self-comparisons with other students. Moreover, in all cases we observed that these self-perceptions were positively associated with fun and negatively associated with boredom.

Fundamentally, these results highlight the importance of self-esteem and self-efficacy when a person faces a task, in this case motor activities in the context of school PE. In fact, these perceptions mediated the relationships between motivational orientation and the attitude with which students approached their PE classes. These results highlight the importance of positive development of self-esteem and self-efficacy in high school students, since these factors can improve the way in which students adapt to school tasks, decreasing the chances of their dropping out of PA later. These types of self-perceptions, when positive, improve the likelihood of successfully carrying out an activity; they contribute to participants feeling happier and better enjoying the challenges they face (Bandura, 1997; Branden, 2011; Butler & Gasson, 2005; Hernández y Garoz 2007).

Our results suggest that higher self-esteem and motor self-efficacy of these students generated an improved perception of their capacity and security to face the motor challenges proposed in the PE classes, and these gains were likely associated with a greater sense of well-being and personal happiness, which probably increased the extent to which they had fun and were less bored when their motivational orientation ego oriented. In line with these findings, several authors (Fraile-García et al., 2019) previously found motor self-efficacy to be related to fun during physical practice, noting that increased self-efficacy positively impacted enjoying physical activity and maintaining interest in the practice. Although task-oriented motivation has been more closely related to learning and ego-oriented motivation has been more closely related to performance (Cid et al., 2019), in both orientations, the perception of competence and personal assessment influences perceptions of success and satisfaction with the activity performed (Tomczak et al., 2020), which is crucial for subsequent pursuit of the student's objectives (Syrmpas & Bekiari, 2018).

Finally, we found our model to be structurally invariant when its predictions were analyzed according to participants' gender and age. This is an interesting outcome, since it demonstrates different results from those of prior studies in which gender and age differences between particiants had been observed. Our different finding may support a cultural basis to inconsistent gender and age effects in the relationship between adolescents' motivation orientation and perceptions of fun or boredom in PE (Babic et al., 2014; Bertills et al., 2018; Biddle et al., 2019; Granero-Gallegos et al., 2012; Huhtiniemi et al., 2019). Of course, it is also possible that varying levels of perceived self-esteem and perceived motoric self-efficacy in different research participants affect these findings across different studies.

Our results are relevant to ongoing research in this area, since many prior investigators linked motivational orientation with fun or boredom in PE classes while

ignoring any mediating effects of self-esteem and self-efficacy. Our data show how these variables may modify these results, and how data interpretation errors could be made in their absence. Since fun or boredom in PE often determine later adherence to physical practice and maintenance in both of out-of-school PA and fun in PE classes, and since perceived motor self-efficacy has had a positive and direct effect on physical activity levels (Cox et al., 2008), it is important to consider both motivational factors and participants' self-perceptions (self-esteem and self-efficacy) to improve explanatory models of fun and boredom in PE classes and make recommendations for improving lifestyle habits among our youth.

Limitations and Directions for Further Research

This study has some limitations. First, self-esteem and self-efficacy are perceptions that can evolve throughout adolescence. While we studied students between 13 and 18 years of age, it would be interesting for future investigators to assess the relationships between these variables in other specific age groups. Second longitudinal studies would help to better assess changes through development in these variables and to understand suspected but not proven causal relationships between these associated variables. Third, intervention studies that focused on efforts to shift motivational orientations and the mediating effects of self-esteem and self-efficacy would allow us to observe whether and how these relationships might be further modified in PE classes.

Conclusion

The results we obtained in this research highlight the importance of students' motivational orientations for generating their perceptions of fun (vs. boredom) in PE. Our data also showed that a higher level of students' self-esteem and motor self-efficacy can improve their perceptions of fun and decrease their perceptions of boredom in PE, despite their ego-oriented motivations. Therefore, when attempting to analyze attitudes towards PE, it is not only necessary to consider motivational variables, but also to consider psychological self-perceptions that can mediate the relationships between these variables. PE teachers and planners should promote a student experience of fun in PE classes by prioritizing task-oriented motivation and enhanced student self-esteem and self-efficacy.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical Statement

Ethical Approval

Throughout the research, we respected the Helsinki declaration, and we obtained prior approval to conduct the study from the ethics committee of the University of Málaga.

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Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

References

Alexandr, A., Sergij, T., & Olena, O. (2016). Role of physical education on the formation of a healthy lifestyle outside of school hours. *Journal of Physical Education and Sport*, *16*(2), 335–341. https://doi.org/10.7752/jpes.2016.02054

Ames, C. (1984). *Competitive, cooperative and individualistic goal structures: A motivational analysis*. Academic Press.

Atienza, F. L., Moreno, Y., & Balaguer, I. (2000). An analysis of the dimensionality of the Rosenberg self-esteem scale in a sample of Valencian adolescents. *Revista de Psicología. Universitas Tarraconensis*, *22*(1), 29–42.

Babic, M. J., Morgan, P. J., Plotnikoff, R. C., Lonsdale, C., White, R. L., & Lubans, D. R. (2014). Physical activity and physical self-concept in youth: Systematic review and meta-analysis. *Sports Medicine*, *44*(11), 1589–1601. https://doi.org/10.1007/s40279-014-0229-z

Baena-Extremera, A., & Granero-Gallegos, A. (2015). Prediction model for satisfaction with physical education and school. *Revista de Psicodidáctica*, *20*(1), 177–192. https://doi.org/10.1387/revpsicodidact.11268

Baena-Extremera, A., Granero-Gallegos, A., Bracho-Amador, C., & Pérez-Quero, F. J. (2012). Spanish version of the sport satisfaction instrument (SSI). Adapted to physical education. *Revista de Psicodidáctica*, *17*(2), 377–395. https://doi.org/10.1387/Rev.Psicodidact.4037

Baessler, J., & Schwarcer, R. (1996). Measuring optimistic self-beliefs: A Spanish adaptation of the general self-efficacy scale. *Ansiedad y Estres*, *2*(1), 1–8.

Balaguer, I., Atienza, F. L., Castillo, I., & Moreno, Y. (1997). Factorial structure of measures of satisfaction/interest in sport and classroom in the case of Spanish adolescents. In: Abstracts of the 4thEuro-pean conference of psychological assessment (p. 76), Lisbon, Portugal.

Balaguer, I., Castillo, I., & Tomás, I. (1996). Analysis of the psychometric properties of the ego and task orientation in sports questionnaire (TEOSQ) in its translation into Spanish. *Psicológica*, *17*(1), 71–81.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1997). *Self-Efficacy: The exercise of control*. Freeman.

Bertills, K., Granlund, M., Dahlström, Ö., & Augustine, L. (2018). Relationships between physical education (PE) teaching and student self-efficacy, aptitude to participate in PE and functional skills: With a special focus on students with disabilities. *Physical Education and Sport Pedagogy*, *23*(4), 387–401. https://doi.org/10.1080/17408989.2018.1441394

Biddle, S. J., Ciaccioni, S., Thomas, G., & Vergeer, I. (2019). Physical activity and mental health in children and adolescents: An updated review of reviews and an analysis of causality. *Psychology of Sport and Exercise*, *42*, 146–155. https://doi.org/10.1016/j.psychsport.2018.08.011

Biolcati, R., Mancini, G., & Trombini, E. (2018). Proneness to boredom and risk behaviors during adolescents' free time. *Psychological Reports*, *121*(2), 303–323. https://doi.org/10.1177/0033294117724447

Branden, N. (2011). *The six pillars of self-esteem*. Paidós.

Bull, F., Al-Ansari, S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J. P., Chastin, S., Chou, R., Dempsey, P. C., DiPietro, L., Ekelund, U., Firth, J., Friedenreich, C. M., Garcia, L., Gichu, M., Jago, R., Katzmarzyk, P. T., & Willumsen, J. F. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, *54*(24), 1451–1462. https://doi.org/10.1136/bjsports-2020-102955

Butler, R. J., & Gasson, S. L. (2005). Self esteem/self concept scales for children and adolescents: A review. *Child and Adolescent Mental Health*, *10*(4), 190–201. https://doi.org/10.1111/j.1475-3588.2005.00368.x

Byrne, B. M. (2016). *Structural equation modelling with AMOS: Basic concepts, applications, and programming* (3rd ed.). Routledge.

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 and Public Health*, *17*(13), 4844. https://doi.org/10.3390/ijerph17134844

Cecchini, J. A., González, C., López, J., & Brustad, R. (2005). The relationship between perceived motivational climate and goal orientation, intrinsic motivation and fair play conducts and viewpoints. *Revista Mexicana de Psicología*, *22*(2), 429–479.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Cid, L., Pires, A., Borrego, C., Duarte-Mendes, P., Teixeira, D. S., Moutão, J. M., & Monteiro, D. (2019). Motivational determinants of physical education grades and the intention to practice sport in the future. *PLoS One*, *14*(5), Article e0217218. https://doi.org/10.1371/journal.pone.0217218

Cox, A. E., Smith, A. L., & Williams, L. (2008). Change in physical education motivation and physical activity behavior during middle school. *Journal of Adolescent Health*, *43*(5), 506–513. https://doi.org/10.1016/j.jadohealth.2008.04.020

Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-efficacy, satisfaction, and academic achievement: The mediator role of students' expectancy-value beliefs. *Frontiers in Psychology*, *8*(1193), 1193. https://doi.org/10.3389/fpsyg.2017.01193

Duda, J. L., Fox, K. R., Biddle, S. J. H., & Armstrong, N. (1992). Children's achievement goals and beliefs about success in sport. *British Journal of Educational Psychology*, *62*(3), 313–323. https://doi.org/10.1111/j.2044-8279.1992.tb01025.x

Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, *84*(3), 290–299. https://doi.org/10.1037/0022-0663.84.3.290

Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.

Fabra, P., Castillo, I., González-García, L., Duda, J. L., Balaguer, I., & I. (2021). Changes in drop out intentions: Implications of the motivational climate, goal orientations and aspects of self-worth across a youth sport season. *Sustainability*, *13*(24), 13850. https://doi.org/10.3390/su132413850

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*(3), 382–388. https://doi.org/10.1177/002224378101800313

Fraile-García, J., Tejero-González, C. M., Esteban-Cornejo, I., & Veiga, Ó. L. (2019). Association between enjoyment, motor self-efficacy, physical activity and academic performance in physical education. *Retos*, *36*, 58–63. https://doi.org/10.47197/retos.v36i36.63035

García-González, L., Sevil-Serrano, J., Abós, A., Aelterman, N., & Haerens, L. (2019). The role of task and ego-oriented climate in explaining students' bright and dark motivational experiences in Physical Education. *Physical Education and Sport Pedagogy*, *24*(4), 344–358. https://doi.org/10.1080/17408989.2019.1592145

Gómez Rijo, A. (2013). Satisfaction of basic psychological needs in relation to the enjoyment and motivation in physical education classes. *Revista de Investigación en Educación*, *11*(2), 77–85.

Granero-Gallegos, A., Baena-Extremera, A., Pérez-Quero, F. J., Ortiz-Camacho, M. M., & Bracho-Amador, C. (2012). Analysis of motivational profiles of satisfaction and importance of physical education in high school adolescents. *Journal of Sports Science and Medicine*, *11*(4), 614–623.

Guthold, R., Stevens, G., Riley, L., & Bull, F. (2018). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1·6 million participants. *The Lancet Child & Adolescent Health*, *4*(1), 23–35. https://doi.org/10.1016/S2352-4642(19)30323-2

Hair, J. F., Black, W. C., & Babin, B. J. (2019). *Multivariate data analysis*. Hampshire, UK: Cengage Learning, EMEA.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis* (8th ed.). Cengage Learning, EMEA.

Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, *85*(1), 4–40. https://doi.org/10.1080/03637751.2017.1352100

Hernandez, J. L., & Garoz, I. (2007). Image of boys, girls and adolescents about themselves. Self-esteem, body self-concept and perception of self-efficacy. In J. L. Hernández & R. Velázquez (coord) (Eds.), *Physical education, lifestyles and adolescents: What they are like, what they look like, what they know and what they think*. Graó.

Hernández-Álvarez, J. L., Velázquez-Buendía, R., Martínez-Gorroño, M. E., & Garoz-Puerta, I. (2011). Motor self-efficacy scale: Psychometric properties and results of its application to the Spanish school population. *Revista de Psicologia del Deporte*, *20*(1), 13–28.

Huhtiniemi, M., Sääkslahti, A., Watt, A., & Jaakkola, T. (2019). Associations among basic psychological needs, motivation and enjoyment within Finnish physical education students. *Journal of Sports Science and Medicine*, *18*(2), 239–247.

Jaakkola, T., Ntoumanis, N., & Liukkonen, J. (2016). Motivational climate, goal orientation, perceived sport ability, and enjoyment within Finnish junior ice hockey players. *Scandinavian Journal of Medicine & Science in Sports*, *26*(1), 109–115. https://doi.org/10.1111/sms.12410

Jackman, P. C., Dargue, E. J., Johnston, J. P., & Hawkins, R. M. (2021). Flow in youth sport, physical activity, and physical education: A systematic review. *Psychology of Sport and Exercise*, *53*, Article 101852. https://doi.org/10.1016/j.psychsport.2020.101852

Kalaja, S., Jaakkola, T., Watt, A., Liukkonen, J., & Ommundsen, Y. (2009). The associations between seventh grade Finnish students' motivational climate, perceived competence, self-determined motivation and fundamental movement skills. *European Physical Education Review*, *15*(3), 315–335. https://doi.org/10.1177/1356336X09364714

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). The Guilford Press.

Knittle, K., Nurmi, J., Crutzen, R., Hankonen, N., Beattie, M., & Dombrowski, S. U. (2018). How can interventions increase motivation for physical activity? A systematic review and meta-analysis. *Health Psychology Review*, *12*(3), 211–230. https://doi.org/10.1080/17437199.2018.1435299

Leisterer, S., & Jekauc, D. (2019). Students' emotional experience in physical education-a qualitative study for new theoretical insights. *Sports*, *7*(1), 10. https://doi.org/10.3390/sports7010010

Marsh, H. W., Hau, K., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling: A Multidisciplinary Journal*, *11*(3), 320–341. https://doi.org/10.1207.s15328007sem1103_2

Mikkelsen, H. T., Haraldstad, K., Helseth, S., Skarstein, S., Småstuen, M. C., & Rohde, G. (2020). Health-related quality of life is strongly associated with self-efficacy, self-esteem, loneliness, and stress in 14–15-year-old adolescents: A cross-sectional study. *Health and Quality of Life Outcomes*, *18*(1), 1–17. https://doi.org/10.1186/s12955-020-01585-9

Min, L., & Kawabata, M. (2022). Perception of boredom in physical education lessons: What factors are associated with students' boredom experiences? *Journal of Teaching in Physical Education*, *41*(4), 710–719. https://doi.org/10.1123/jtpe.2021-0090

Monteiro, D., Rodrigues, F., & Lopes, V. P. (2021). Social support provided by the best friend and vigorous-intensity physical activity in the relationship between perceived benefits and

global self-worth of adolescents. *Revista de Psicodidática*, *26*(1), 70–77. https://doi.org/10.1016/j.psicoe.2020.11.004

Moore, J. B., Yin, Z., Hanes, J., Duda, J., Gutin, B., & Barbeau, P. (2009). Measuring enjoyment of physical activity in children: Validation of the physical activity enjoyment scale. *Journal of Applied Sport Psychology*, *21*(sup1), 116–129. https://doi.org/10.1080/10413200802593612

Morales-Sánchez, V., Hernández-Martos, J., Reigal, R. E., Morillo-Baro, J. P., Caballero-Cerbán, M., & Hernández-Mendo, A. (2021). Physical self-concept and motor self-efficacy are related to satisfaction/enjoyment and boredom in physical education classes. *Sustainability*, *13*(16), 8829. https://doi.org/10.3390/su13168829

Nevitt, J., & Hancock, G. (2001). Performance of Bootstrapping approaches to model test statistics and parameter standard error estimation in Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *8*(3), 353–377. https://doi.org/10.1207/s15328007sem0803_2

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice and performance. *Psychological Review*, *91*(3), 328–346. https://doi.org/10.1037/0033-295X.91.3.328

Ntoumanis, N., Barkoukis, V., & Thøgersen-Ntoumani, C. (2009). Developmental trajectories of motivation in physical education: Course, demographic differences, and antecedents. *Journal of Educational Psychology*, *101*(3), 717–728. https://doi.org/10.1037/a0014696

Ntoumanis, N., & Biddle, S. (1999). A review of motivational climate in physical activity. *Journal of Sports Sciences*, *17*(8), 643–665. https://doi.org/10.1080/026404199365678

Orth, U., Trzesniewski, K. H., & Robins, R. W. (2010). Self-esteem development from young adulthood to old age: A cohort sequential longitudinal study. *Journal of Personality and Social Psychology*, *98*(4), 645–658. https://doi.org/10.1037/a0018769

Parish, L. E., & Treasure, D. C. (2003). Physical activity and situational motivation in physical education: Influence of the motivational climate and perceived ability. *Research Quarterly for Exercise & Sport*, *74*(2), 173–182. https://doi.org/10.1080/02701367.2003.10609079

Raykov, T. (1997). Estimation of composite reliability for congeneric measures. *Applied Psychological Measurement*, *21*(2), 173–184. https://doi.org/10.1177/01466216970212006

Rodrigues, F., Monteiro, D., Teixeira, D., & Cid, L. (2020). Understanding motivational climates in physical education classes: How students perceive learning and performance-oriented climates by teachers and peers. *Current Psychology*, *41*(8), 5298–5306. https://doi.org/10.1007/s12144-020-01047-x

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.

Rupérez, A. I., Olza, J., Gil-Campos, M., Leis, R., Bueno, G., Aguilera, C. M., Gil, A., & Moreno, L. A. (2018). Cardiovascular risk biomarkers and metabolically unhealthy status in prepubertal children: Comparison of definitions. *Nutrition, Metabolism, and Cardiovascular Diseases*, *28*(5), 524–530. https://doi.org/10.1016/j.numecd.2018.02.006

Scherrer, V., & Preckel, F. (2019). Development of motivational variables and self-esteem during the school career: A meta-analysis of longitudinal studies. *Review of Educational Research*, *89*(2), 211–258. https://doi.org/10.3102/0034654318819127

Schmalz, D., Deane, G. D., Birch, L. L., & Davison, K. K. (2007). A longitudinal assessment of the links between physical activity and self-esteem in early adolescent non-hispanic females. *Journal of Adolescent Health*, *41*(6), 559–565. https://doi.org/10.1016/j.jadohealth.2007.07.001

Schneider, M., Dunton, G. F., & Cooper, D. (2008). Physical activity and physical Self -concept among sedentary adolescent females: An intervention study. *Psychology of Sport and Exercise*, *9*(1), 1–14. https://doi.org/10.1016/j.psychsport.2007.01.003

Sevil, J., Julian, J. A., Abarca-Sos, A., & Aibar, A. (2014). Effect of a teaching intervention to improve situational motivational variables in Physical Education. *Retos. Nuevas Tendencias en Educación Física, Deporte y Recreación*, *26*, 108–113.

Syrmpas, I., & Bekiari, A. (2018). Differences between leadership style and verbal aggressiveness profile of coaches and the satisfaction and goal orientation of young athletes. *Journal of Physical Education and Sport*, *18*(2), 1008–1015. https://doi.org/10.7752/jpes.2018.s2149

Tomczak, M., Walczak, M., Kleka, P., Walczak, A., & Bojkowski, Ł. (2020). Psychometric properties of the polish version of task and ego orientation in sport questionnaire (TEOSQ). *International Journal of Environmental Research and Public Health*, *17*(10), 3593. https://doi.org/10.3390/ijerph17103593

Trigueros, R., Aguilar-Parra, J. M., Cangas, A. J., Bermejo, R., Ferrandiz, C., & López-Liria, R. (2019). Influence of emotional intelligence, motivation and resilience on academic performance and the adoption of healthy lifestyle habits among adolescents. *International Journal of Environmental Research and Public Health*, *16*(16), 2810. https://doi.org/10.3390/ijerph16162810

White, R. L., Bennie, A., Vasconcellos, D., Cinelli, R., Hilland, T., Owen, K. B., & Lonsdale, C. (2021). Self-determination theory in physical education: A systematic review of qualitative studies. *Teaching and Teacher Education*, *99*, Article 103247. https://doi.org/10.1016/j.tate.2020.103247

Williams, J., & Mackinnon, D. P. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling: A Multidisciplinary Journal*, *15*(1), 23–51. https://doi.org/10.1080/10705510701758166

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