

## Physical Education classes, sports motivation and adolescence: study of some moderating variables

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*CLASES DE EDUCACIÓN FÍSICA, MOTIVACIÓN DEPORTIVA Y ADOLESCENCIA: ESTUDIO DE ALGUNAS VARIABLES MODERADORAS*

**KEYWORDS:** Sport motivation, drop out, importance and utility of physical education perception, professor learning climate.

**ABSTRACT:** Adolescence is considered a stage in which there are high rates of sports drop out, and this evidence justifies the need to study those factors that may affect this fact. Importance and Utility of Physical Education Perception (IUPEP) is shown in the literature as a factor to consider when studying this phenomenon, and seems to be affected by the Sport Motivation (SM) of young people. Although the relationship between these two constructs has been studied, it has not been the moderating role that other constructs such as the Professor Learning Climate (PLC) or Student Learning Orientation (SLO) can have in this relationship. The present study analyzes the relationship between IUPEP and SM, as well as the moderating role of PLC and SLO in this relationship. This analyses was performed using the PROCESS macro (Hayes, 2013), designed for testing the moderation by directly assessing the significance of the indirect effect of the independent variable (X; SM) on the dependent variable (Y; IUPEP) through two moderators: PLC (M) and SLO (W). The study was carried out with 267 adolescents from eight classes of public centers in Valencia, aged between 11 and 18 years ( $mean = 14.04 \pm 1.64$ ), 52.8% male. The results suggest that Sports Motivation explains 21% of the Importance and Utility of Physical Education Perception, and, in addition, a moderating role of Professor Learning Climate and Student Learning Orientation in this relationship is observed.

The present paper analyzes the modulating role that certain variables could have in the context of physical education classes in adolescents and that is related to sports motivation. The interest in the practice of physical activity and the creation of healthy habits in young people and adolescents becomes increasingly important due to the remarkable growth of sedentary and obesity rates in today's society.

Physical education classes have become a key element as it is the mandatory contact with physical activity and sport for children and young people of school age. As an example, about 80% of girls and boys of school age only participate in physical activities at school (European Commission - Eurydice, 2013).

Physical education classes can prepare young people to practice sport throughout their lives (Gutiérrez, Ruiz Pérez and López, 2011) and can contribute to promoting healthy behaviors (Sicilia, Ferriz and Coll, 2016).

Many studies have analyzed the relationship of motivation to the sport practice of children and youth (Sport Motivation= SM) with the Importance and Utility of Physical Education Perception (IUPEP), although not much attention has been paid to the moderating role that certain variables might be having in this relationship, because of the motivation for physical activity does not depend only on the motivational climate (Castro, Zurita, Martínez, Chacón and Espejo, 2016).

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SM is a key construct to achieve commitment and adherence to sports practice, since it awakens, provides the necessary energy and directs it (Murcia, Gimeno and Coll, 2007), while IUPEP has a positive relation with the interest in physical activity outside school and with the generation of habits of sports practice in free time (Gallegos and Extremera, 2014; Kilpatrick, Hebert and Jacobsen, 2002; Moreno-Murcia, Zomeño Álvarez, Marín de Oliveira and Ruiz Pérez, 2013).

The environment created for the development of SM by significant adults in achievement environments is called Motivational Climate, and is defined as a set of implicit and / or explicit signals that the participant perceives from the environment, and from which the keys to success and failure are defined (Ames, 1995). For Castuera, Gimeno, Calvo, Ruano and Álvarez del Villar, (2006) is the way in which a person judges his competence or ability to perform a task. For Cervelló Gimeno, Calvo, Ureña Espá, Martínez and others (2002) is composed of two dimensions: one oriented to performance (when one person is successful in showing more skill compared to others), and another oriented towards learning (one person is oriented to the task and judges its ability in function of its own dominion of the task, ignoring the social comparison). This last dimension is, in turn, composed of two factors: The Professor Learning Climate (PLC) and Student Learning Orientation (SLO).

The study assumes the positive role that SM plays in IUPEP in students, and evaluates the moderating role of certain variables in this relation. The Learning Climate generated by the Teacher (PLC) and the Student Learning Orientation (SLO) have been considered as moderating variables. A study of the moderating role of these variables is particularly important because it would allow the adoption of strategies to improve the importance given by students to physical education classes in order to generate habits of extracurricular sports and healthy lifestyles.

## Method

### Participants

Participants of the study were 267 adolescents, aged from 11 to 18 years old ( $Mean=14.04 \pm 1.64$ ), from High Schools on the Valencia Community. 55.8% were boys (149) and 44.2% were girls (118). On the other hand, considering the sports

practice out of the scholar context, 75.2% (201) practice sport, while 24.8% do not practice (66).

### Instruments

*Importance and Utility of Physical Education Perception (IUPEP)* (Moreno Murcia, Coll and Ruiz Pérez, 2009). The scale measures the importance-utility granted by the student to Physical Education. It was formed by three items grouped in a single factor: 'I consider it important to receive physical education classes', 'Compared to other subjects, I believe that Physical Education is one of the most important' and 'I believe that the things I learn in Physical Education will be useful to me in my life'. Students had to respond on a Likert scale with a score ranging from 1 ('strongly disagree') to 7 ('fully agree'). It presents adequate psychometric properties in previous studies ( $\alpha=.75$ ) and also in this study (.76).

*Sports Motivation Scale (SM)*. It was created by Brière, Vallerand, Blais and Pelletier (1995), and adapted to Spanish context by Martín-Albo, Navarro, Núñez and González Ruíz (2007). The last one was used in the present study. It is composed of 28 items grouped in three factors (Intrinsic motivation; Extrinsic motivation, Demotivation). The questions of the scale were headed with the phrase: "I participate and I work in Physical Education classes ...". Students had to respond on a Likert scale with a score ranging from 1 ('strongly disagree') to 7 ('strongly agree'). It presents adequate psychometric properties in previous studies (Intrinsic motivation  $\alpha=.71$ ; Extrinsic motivation  $\alpha=.93$ , Demotivation  $\alpha=.91$ ) and also in this study (Intrinsic motivation  $\alpha=.92$ ; Extrinsic motivation  $\alpha=.85$ , Demotivation  $\alpha=.64$ )

*Questionnaire on Orientation to Learning and Performance in Physical Education Classes (LAPOPECQ)* created by Papaioannou (1994) and adapted to Spanish by Gimeno, Castuera, Ramón and Murcia (2010). It is composed of 27 items grouped into five factors and two second order factors: Motivational Climate Perception that implies learning (teacher learning climate (PLC) and student learning orientation (SLO)); Perception of the Motivational Climate that implies to the performance (orientation to the result by the students, concern of the students by the errors, orientation to the result without effort). The response format is based on a Likert scale with seven anchors of 1 (strongly disagree) to 7 (strongly agree). It presents adequate psychometric properties in previous studies (Climate Learning by the teacher  $\alpha = .76$ ; Orientation to the learning

students  $\alpha = .80$ ; Orientation to the result students  $\alpha = .75$ ; Student preoccupations by errors  $\alpha = .81$ ; Orientation to the Result without effort  $\alpha = .64$ ) and also in this study (Climate Learning by the teacher  $\alpha = .72$ ; Orientation to the learning students  $\alpha = .76$ ; Orientation to the result students  $\alpha = .83$ ; Student preoccupations by errors  $\alpha = .73$ ; Orientation to the result without effort  $\alpha = .63$ ). In the present study we will consider only PLC and SLO factors.

### Procedure

The questionnaires were administered collectively during regular class lasting approximately 30 minutes. The effect of the question order in the questionnaires was controlled. The necessary consents were obtained before recruiting the children.

### Data analysis

The moderating effect of Professor Learning Climate (PLC) and Student Learning Orientation (SLO) was examined on the effect of Sport Motivation (SM) on the Importance and Utility of Physical Education Perception (IUPEP). This analyses was performed using the PROCESS macro (Hayes, 2013) designed for testing the moderation by directly assessing the significance of the indirect effect of the independent variable (X; SM) on the dependent variable (Y; IUPEP) through two moderators: PLC (M) and SLO (W). The moderation effect (with  $n = 5,000$  bootstrap re-samples) is demonstrated when the bias-corrected confidence interval (95%) of the indirect effect does not include zero (Hayes, 2013).

### Results

Table 1 shows results of the conditional process analysis. The direct effect of Sport Motivation (SM) on the Importance and Utility of Physical Education Perception (IUPEP), and indirect effects of Professor Learning Climate (PLC) and

Student Learning Orientation (SLO) on the effect of SM on IUPEP are given.

As reports Table 1, Sport Motivation (SM) seems to explain 21% of the Importance and Utility of Physical Education Perception (IUPEP) ( $R^2=.21$ ). On the other hand, considering the indirect effects both interactions were significant, since they do not contain 0 (Hayes, 2013). In addition changes in  $R^2$  with the addition of the moderating effect of Professor Learning Climate (PLC) ( $F=7.26$ ;  $p=.01$ ) and Student Learning Orientation (SLO) ( $F=5.23$ ;  $p=.02$ ) were low but significant. Observing the results, it seems that there are a moderating effect of PLC and SLO on the effect of SM on IUPEP.

### Discussion

There are very few studies that have addressed the analysis of the moderating role that certain variables exert in the relationship between Sports Motivation and the Importance and Utility of Perception of Physical Education of students.

Moderation exerts an interaction effect between variables or even affects the magnitude and / or sense of the positive relationship between SM and IUPEP. The results confirm the relationship between SM and IUPEP, and show the existence of a moderating role in this relation of the Professor Learning Climate and the Students Learning Orientation. These results are in line with Moreno Murcia and Llamas (2007) when they point to the positive relationship between the perception of a task - oriented motivational climate and the IUPEP, but also clarify its moderating role in the SM - IUPEP relationship.

Taking into account the results, one of the most important practical implications would be to give the importance that the PLC requires, and to intervene on the SLO as a means to increase the Importance and Utility of Perception of Physical Education of students.

Direct effect of SM on IUPEP							
	Effect	SE	t	p		R <sup>2</sup>	F (p)
	.46	.10	8.12	.000		.21	65.93 (.00)
Moderator effects of PLC and SLO							
	Effect	Boot SE	t	p	95%CI	$\Delta R^2$	F
Ind1: PLC	-.34	.13	-2.70	.01	-.59 -.09	.02	7.26 (.01)
Ind2: SLO	.25	.11	2.29	.02	.04 .47	.01	5.23 (.02)

3 Note: Importance and Utility of Physical Education Perception (IUPEP); Sport Motivation  
4 (SM); Professor Learning Climate (PLC); and Student Learning Orientation (SLO)

Table 1. Model Summary Information for the Serial Multiple Moderator Model

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**PALABRAS CLAVE:** Motivación deportiva, abandono, percepción de la importancia y utilidad de las clases de educación física, clima de aprendizaje del profesor.

**RESUMEN:** La adolescencia está considerada como una etapa en la que existen altas tasas de abandono deportivo, y esta evidencia justifica la necesidad de estudio de aquellos factores que puedan afectar a este hecho. La Percepción de la importancia y utilidad otorgada a la educación física (IUPEP) se muestra en la literatura como un factor a considerar a la hora de estudiar este fenómeno, y parece estar afectada por la motivación deportiva (SM) de los jóvenes. Aunque la relación entre estos dos constructos ha sido estudiada, no lo ha sido el papel moderador que pueden tener en esta relación otros constructos como el clima de aprendizaje propiciado por el profesor (PLC) o la orientación al aprendizaje del alumno (SLO). El presente estudio analiza la relación entre IUPEP y SM, así como el papel moderador de PLC y SLO en dicha relación. Para el análisis se utiliza la macro PROCESS (Hayes, 2013), diseñada para testear la moderación mediante la evaluación de la importancia del efecto indirecto de la variable independiente (X; SM) sobre la variable dependiente (Y; IUPEP), a través de dos moderadores: PLC (M) y SLO (W). El estudio se llevó a cabo con 267 adolescentes de ocho clases de centros públicos de Valencia, con edades comprendidas entre los 11 y 18 años, (*Media*=14.04 ± 1.64), 52.8 % varones. Los resultados sugieren que la motivación deportiva explica en 21% de la percepción de la importancia y utilidad de las clases de educación física, además de observarse un papel moderador del clima de aprendizaje propiciado por el profesor y la orientación al aprendizaje del alumno en esta relación.

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