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Motivation, motivational climate and importance of Physical Education

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Abstract

The aim of this paper is to know the relations between both theories through motivation, motivational climate and the importance of Physical Education (PE). The sample consisted of 1298 Spanish students (626 males = 48.2%; 672 females = 51.8%). Secondary schools students from the provinces of Almería, Granada and Málaga participated. The age range was between 12 and 19 years (M = 15. 13) (SD=1.43), the boys’ age average being 15.26 (SD=1.42) and that of the girls being 15.01 (SD = 1.43) years. We used a questionnaire which included Sports Motivation Scale (SMS), Learning and Performance Orientations in Physical Education Classes Questionnaire (LAPOPECQ) and Importance of PE (IPE). MANOVA was performed. The results of this study show that PE students in high school have a higher intrinsic than extrinsic motivation, and that there is an even greater motivation among boys than among girls. Furthermore, among students, the perception of motivational climate for learning is greater than for performance, although the boys perceive a greater performance climate. Boys also ascribe greater importance and utility to PE.

Keywords: physical education; importance; self-determined motivation; motivational climate.

1. Introduction

There are alarming trends which give rise to such a question as what can be done in programmes like Physical Education (PE) to improve or prevent overweight. In Spain, overweight among adults reached a rate of 20% in 2010, one of the highest in Europe (Franco, Sanz, Otero, Domínguez-Villa, & Caballero, 2010), a fact that brings with it a severe economic burden for the Spanish state, in addition to the associated health risks.
To reduce this problem, PE has an important role, because one of his aims is for students to learn healthy habits. In the study of motivational processes related to the acquisition of healthy habits in students, the social-cognitive theory has led to great advances. Two of the most important PE theories are the achievement goal theory (Nicholls, 1984) and the theory of self-determination (Deci & Ryan, 1985). Both allow for the obtaining of very valuable information for teachers, helping them to increase the learners’ positive experiences in PE lessons (Moreno & Llamas, 2007) and, thus, to promote a greater participation in and motivation for sport activities.

The achievement goal theory (Nicholls, 1989) aims to analyze the different dispositional and environmental factors influencing the subject’s achievement motivation and it distinguishes between personal factors (dispositional orientation), and social and situational factors (motivational climate). Thus, a student who perceives a climate task will aim to master the task that is proposed to him or her in class, and achieving it will increase his or her sense of competence. By contrast, a student who perceives an ego climate (competitive climate) aims to show his or her competence in relation to others and relates failure to his or her lack of ability (Moreno, Zomeño, Marin, Ruiz & Cervelló, 2013).

On the other hand, the self-determination theory (Deci & Ryan, 1985, 2000) explains the existence of different types of motivation which can influence students: intrinsic motivation (for Knowledge, for achievement and for stimulation), extrinsic motivation (identified, introjected and external regulation) and amotivation.

Several studies in PE (Goudas, 1998; Moreno, Llamas & Ruiz, 2006) have studied both theories together, trying to discover the relationship between motivation and the motivational climate perceived by the students. Thus, for example, Standage, Duda and Ntoumanis (2003) have demonstrated that there is a positive relationship between the motivational climate surrounding the task and intrinsic motivation. Likewise, Moreno and Llamas (2007) showed that motivation generated by the teacher was a determining factor in the perception of the usefulness and importance of PE by students. Other authors like Moreno, Zomeño and Marin (2009a) and Moreno, Cervelló and González-Cutre (2007) found that students who practiced more extracurricular physical activity, perceived PE to be of high importance and usefulness.

According to this information, the aim of this paper is to know the relation between both theories through motivation, motivational climate and the importance of PE. These results can offer important information to design the curriculum programmes.

2. Method

2.1. Participants

In this study a total of 1298 (626 males = 48.2%; 672 females = 51.8%) secondary schools students from the provinces of Almería, Granada and Málaga participated. The age range was between 12 and 19 years ($M = 15.13$) ($SD = 1.43$), with the boys’ age average being 15.26 ($SD = 1.42$) and that of the girls’ being 15.01 ($SD = 1.43$) years.

2.2. Instruments

Sport Motivation Scale (SMS): the Spanish validated version was used by Núñez, Martin-Albo, Navarro and González (2006) and adapted for PE by by Granero-Gallegos and Baena-Extremera (2013). The original scale was called Echelle Motivation dans les Sports (EMS) (Brière Vallerand, Blais, & Pelletier, 1995) and was translated into English by Pelletier et al. (1995) that renamed it Sport Motivation Scale (SMS), and psychometric performance similar to the French version was obtained. It consists of 28 items, which include the different types of motivation, as established by the theory of self-determination (Deci and Ryan, 1985). The theory of self-determination explains the multidimensionality of motivation: amotivation, extrinsic motivation (EM) (external regulation EM, introjected EM and identified EM), and intrinsic motivation (IM) (IM knowledge, IM achievement and IM stimulation). A total of four items corresponds to each of the seven motivational factors. Students were asked to answer on a scale of polotomic items with a range of scores from 1 (strongly disagree) to 7 (fully agree). Previous studies (e.g., Moreno & Llamas, 2007, Moreno et al., 2006) have proven the internal validity of the factor structure of the instrument, as well as its reliability in the field of PE. Internal consistency found in this study was:
IM knowledge, $\alpha = .84$; IM achievement, $\alpha = .82$; IM stimulation, $\alpha = .82$; identified EM, $\alpha = .80$; imposed EM, $\alpha = .69$; external regulation EM, $\alpha = .77$; and amotivation, $\alpha = .72$. The consistency among males’ values was between .66 (introjected EM) and .84 (IM knowledge), while, among girls, the values ranged from .67 (amotivation) to .84 (IM knowledge). Although internal consistencies values of less than .70 were obtained by some factors (but between .66 and .70), they can be considered marginally acceptable given the small number of items on the subscale (Taylor, Ntoumanis, & Standage, 2008).

Learning and Performance Orientations in Physical Education Classes Questionnaire (LAPOPECQ): the Spanish version of the original Learning and Performance Orientations in Physical Education Classes Questionnaire (Papaioannou, 1994) was used (Cervelló et al., 2002). This scale measures the students’ perception of motivational climate in PE classes. It is composed of 27 items and has two dimensions: Perception of motivational climate, which involves learning (learning climate; 13 items) and Perception of motivational climate, which involves performance (performance climate; 14 items). Students had to answer on a scale of polimitic items with a range of scores between 0 (strongly disagree) and 10 (totally agree). Recent studies (e.g., Moreno et al., 2009b) with regard to adolescents in educational contexts have shown the internal reliability and validity of the factor structure in two first order subscales, obtaining internal consistency values greater than $\alpha = .75$ for the dimension of motivational climate for performance and $\alpha = .84$ for the motivational climate for learning. In the present study, the internal consistency of the subscale climate for learning was $\alpha = .91 (\alpha_{\text{male}} = .90; \alpha_{\text{female}} = .92)$ and performance climate, $\alpha = .87 (\alpha_{\text{male}} = .87; \alpha_{\text{female}} = .86)$.

Importance of PE (IPE): This test measured the importance and usefulness of PE as perceived by students (Moreno, González-Cutre, & Ruiz, 2009a) through 3 items. Students had to answer on a scale of polimitic items with a range of scores between 1 (strongly disagree) to 4 (fully agree). Previous studies showed its internal validity and reliability in the field of PE: $\alpha = .75$ (Moreno et al., 2009c), $\alpha = .76$ (Moreno & Llamas, 2007; Granero-Gallegos et al., 2012). In this study the reliability obtained was .76 ($\alpha_{\text{male}} = .76; \alpha_{\text{female}} = .76$).

2.3. Procedure

We were allowed by the different schools headmasters to carry out the research and students were informed of the purpose of the study and their rights as participants. The tests were done during PE lessons after agreement with the teacher. Each participant had 20-30 minutes to complete the questionnaires. The answers to the instrument were kept anonymous.

2.4. Statistical analysis

Descriptive statistics were calculated for each of the items, mean (M) and standard deviation (SD) values. The reliability of each dimension internal consistency index was calculated through ($\alpha$) Cronbach’s alpha. A multivariate analysis of variance (MANOVA) was performed to analyze the effect of interaction of sex in the studied subscales. The SPSS (Statistical Package for Social Science) v.17.0 was used to do calculations.

3. Results

3.1. Effects of interaction of sex on the motivation, perceived motivational climate and the importance of PE as perceived by the participants

To analyze the effects of interaction of sex on the constructs studied, multivariate analysis of variance was carried out (MANOVA), in which the independent variable was the sex and the dependent variables were the subscales of self-determined motivation, motivational climate and the importance and utility of PE as perceived by the participants. The homogeneity of covariance was examined with Box’s M test and the null hypothesis of setting data was rejected ($Box \, M = 147.89, F = 2.67, p < .000$). We thus followed the suggestions of Tabachnick and Fidell (2006) regarding the use of Pillai’s Trace instead of the Wilks’ Lambda to evaluate the multivariate
significance of the main effects and their interactions. The multivariate contrast showed significant differences and effects of interaction of the independent variable (sex) (Pillai’s Trace = .11, $F_{(10, 1275)} = 15.39$, $p < .000$, $d = .11$, power = 1.0) with the remaining variables. Also, the results of the effect size ($d$) and power indicate that the differences are high. The tests on the intersubject effects showed significant differences in eight dimensions (Table 1).

Differences were found in the SMS in the IM knowledge ($F = 34.58$, $p < .000$), in the IM achievement ($F = 32.05$, $p < .000$), IM stimulation ($F = 39.22$, $p < .000$), identified EM ($p < .000$), introjected EM ($F = 41.98$, $p = .001$) and EM by external regulation ($F = 74.38$, $p < .000$); in all these dimensions, males scored higher than females. In LAPOPECQ, males showed higher values than females in performance climate ($F = 67.52$, $p < .000$). No statistically significant differences in relation to the learning climate were found. On the importance and usefulness of PE as perceived by participants, the boys also had higher values than the girls ($F = 27.28$, $p < .000$).

Table 1. Multivariate analysis (intersubject effects according to sex) based on the SMS, LAPOPECQ and IPE subscales

<table>
<thead>
<tr>
<th></th>
<th>Male (n = 626)</th>
<th>Female (n = 672)</th>
<th>A</th>
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<tr>
<td>IM knowledge</td>
<td>.84</td>
<td>4.99</td>
<td>1.30</td>
<td></td>
<td>.84</td>
<td>4.55</td>
<td>1.39</td>
<td>34.58</td>
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<td>IM achievement</td>
<td>.78</td>
<td>5.25</td>
<td>1.18</td>
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<td>.83</td>
<td>4.85</td>
<td>1.37</td>
<td>32.05</td>
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<td>IM stimulation</td>
<td>.79</td>
<td>5.06</td>
<td>1.24</td>
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<td>.83</td>
<td>4.60</td>
<td>1.37</td>
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<td>4.88</td>
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<td>.78</td>
<td>4.39</td>
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<td>.70</td>
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<td>.77</td>
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<td>1.52</td>
<td></td>
<td>.67</td>
<td>3.06</td>
<td>1.31</td>
<td>1.66</td>
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<td>Learning climate</td>
<td>.90</td>
<td>68.70</td>
<td>17.30</td>
<td></td>
<td>.92</td>
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<td>18.61</td>
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<td>Performance climate</td>
<td>.87</td>
<td>58.31</td>
<td>16.68</td>
<td></td>
<td>.86</td>
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Note. $p$ is significant to level < .05

4. Discussion and conclusions

The objective of this research was to study the relations between SMS, LAPOPECQ and IPE to know how to give influence to practice more physical activity. The importance of this work lies on the fact that these results provide valuable information with regard to the variables that are most likely to increase in after-school physical activity and greater adherence to the practice of sport, especially among girls.

Table 1 shows how intrinsic motivation in its different typologies gets higher values than the extrinsic motivation, with amotivation getting the lowest. These results corroborate those obtained by Granero-Gallegos, Baena-Extremera, De Deus, Bracho-Amador and Pérez-Quero (2013) and Gómez-López, Granero-Gallegos, Baena-Extremera and Abraldes (2013) who argue that among high school students, intrinsic motivation gets a higher score than extrinsic motivation, while amotivation is always the lowest.

In the LAPOPECQ, males had significantly higher values than females in performance climate, while there were no statistically significant differences in relation to the learning climate. In this last subscale scores higher than for performance climate were obtained, coinciding with the results obtained by Martínez-Galindo, Alonso, Cervelló and Moreno (2009) and Moreno et al. (2006; 2009b; 2013).

In relation to the importance and usefulness of PE, boys showed higher values than girls, coinciding with the work of Moreno et al. (2006). In relation to the former type of motivation, data from this research corroborates the
contribuciones de Baena-Extremera et al. (2012), Gómez-López et al. (2013), Granero-Gallegos et al. (2012), y Moreno et al. (2006), quienes argumentan que el perfil motivacional autodeterminado se asocia con mayor importancia a la PE.

En este sentido, Ennis (1996) afirma que las niñas tienden a tener experiencias negativas en la PE y menos interés en participar en este área y hacer actividad física en su tiempo libre.

En conclusión, debemos resaltar que los estudiantes de PE en la secundaria tienen un mayor nivel de autodeterminación motivacional, y hay un mayor nivel de motivación entre los estudiantes de PE que entre los estudiantes de la PE. Asimismo, los estudiantes perciben una percepción de clima motivacional para el aprendizaje mayor que para el rendimiento, aunque los estudiantes perciben un mayor clima de rendimiento. Los estudiantes también perciben mayor importancia y utilidad de la PE.

Por lo tanto, este tipo de investigación servirá para ayudar a diseñar programas de PE que busquen un mejor entendimiento de la motivación para ser activos físicos (Coakley & White, 1992) ya que las experiencias de PE en las clases de PEM como mediadoras en el logro de una conducta saludable (Moreno et al., 2006).

**Referencias**


