Vílchez, M.P.; Ruiz-Juan, F. (2022) Social Goals, Perceived Locus of Causality and Causal Attributions in Physical Education. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte vol. 22 (87) pp. 687-706
Http://cdeporte.rediris.es/revista/revista87/artmetas1380.htm
DOI: https://doi.org/10.15366/rimcafd2022.87.016

ORIGINAL

SOCIAL GOALS, PERCEIVED LOCUS OF CAUSALITY AND CAUSAL ATTRIBUTIONS IN PHYSICAL EDUCATION

METAS SOCIALES, LOCUS PERCIBIDO DE CAUSALIDAD Y ATRIBUCIONES CAUSALES EN EDUCACIÓN FÍSICA

Vílchez, M.P.[1]; Ruiz-Juan, F.[2]

[1] Doctora en Educación Física y Salud, Universidad Católica de Murcia (Spain) mdpvilchez@ucam.edu
[2] Doctor en Ciencias del Deporte, Universidad de Murcia (Spain) pacoruizjuan@gmail.com

Spanish-English translators: Paula Hubbard, paulahubbard1964@gmail.com

AGRADECIMIENTOS O FINANCIACIÓN

Este estudio forma parte de un Proyecto longitudinal para medir la influencia de variables de la Educación Física y la actividad física en el tiempo de ocio en los hábitos de práctica a lo largo del tiempo.

Código UNESCO / UNESCO code: 61401 Procesos Congitivos / Cognitive proceses
Clasificación Consejo de Europa / Council of Europe classification: 17. Otras: Actividad Física y Salud / Others: Physical Activity and Health

Recibido 10 de mayo de 2020 **Received** 2020, May 10
Aceptado 22 de noviembre de 2021 **Accepted** 2021, November 22

ABSTRACT

The objective of this study sought to investigate the association of social goals, perceived locus of causality, and causal attributions with achievement goal orientations in physical education in three countries representing different cultural contexts. The total sample consisted of 2168 secondary students, 423 of which were from Costa Rica, 408 from Mexico, and 1337 from Spain (50.4% boys; 12.5±0.8 years). Bivariate correlations and hierarchical linear regression models were used to examine associations between the variables of interest in the three countries. Significant mean differences in each of the variables were observed across countries. Although interesting differences were observed, associations among variables of interest were generally consistent across countries and in line with predictions stemming from the literature. Findings highlight the importance of social responsibility goals, self-determined regulations, and internal attributions to student motivation and engagement in physical education.

KEY WORDS: motivation, health, attitudes, physical activity, schoolchildren.

RESUMEN

El objetivo del estudio fue investigar la asociación de metas sociales, locus de causalidad percibido y atribuciones causales con orientaciones de metas de logro en educación física, en tres países que representan diferentes contextos culturales. La muestra total estuvo compuesta por 2168 estudiantes de secundaria, de los cuales 423 eran de Costa Rica, 408 de México y 1337 de España (50,4% niños; 12,5±0,8 años). Se utilizaron correlaciones bivariadas y modelos de regresión lineal jerárquica para examinar las asociaciones entre las variables de interés en los tres países. Se observaron diferencias significativas de medias en cada una de las variables entre países. Aunque se observaron diferencias interesantes, las asociaciones entre las variables de interés fueron generalmente consistentes entre países y en línea con las predicciones derivadas de la literatura. Los hallazgos resaltan la importancia de las metas de responsabilidad social, las regulaciones autodeterminadas y las atribuciones internas para la motivación y el compromiso de los estudiantes en la educación física.

PALABRAS CLAVE: motivación, salud, actitudes, actividad física, escolares.

INTRODUCTION

Achievement Goal Theory is an important theoretical model to understand student motivation and behavior, both in physical education (PE) and leisure-time physical activity (Guan, McBride & Xiang, 2007). This theory has undergone many modifications over time. Papaiannou, Tsigilis, Kosmidou and Milosis (2007) proposed to assess student goal orientations based on a three-component model focusing on mastery, performance-approach and performance-avoidance goals. According to this perspective, students endorsing *mastery* goals are focused on learning and developing skills, while students endorsing *performance-approach* goals seek to demonstrate better skill execution than their counterparts. The *performance-avoidance* goal orientation is reflective of an intention to avoid doing worse than others (Ruiz-Juan, 2014). Additionally, these authors proposed a new dimension called *social approval*, which reflects personal commitment instead of capacity or aptitude (Amado, Leo, Sánchez, González & López, 2012; Piéron & Ruiz-Juan, 2010). These orientations are dispositional, and are established around the age of 12 (García, Santos-Rosa, Jiménez & Cervelló, 2005), coinciding with the age of the sample used in this study.

Self-Determination Theory (Deci & Ryan, 1985, 2000) posits that motivation is best understood as a continuum of regulations. Intrinsic motivation is at stake when motives to participate in physical activity are self-endorsed and the individual enjoys taking part in the activity. This regulation has been proposed in the literature as the more likely to generate participation habits and greater adherence in the future (Gómez-Rijo, Gámez & Martínez, 2011). Therefore, intrinsic motivation should be preferentially targeted in PE lessons.

According to González-Cutre, Sicilia and Moreno (2011), extrinsic motivation has four dimensions with varying degrees of self-determination, in increasing order: external regulation (students take part in the lessons because they have to); introjected regulation (students participate actively in the lessons because, otherwise, they would feel guilty and bad about themselves); identified regulation (students know about the importance of PE and the benefits that may accrue from participation), and integrated regulation (students are optimally involved in the lessons because it is part of their lifestyle). Nevertheless, the latter regulation is not common because young people do not typically manage to integrate all aspects that make up their lifestyle and personality (Pannekoek, Piek & Hagger, 2014). Therefore, integrated regulation will not be dealt with in the present study.

Lastly, amotivation is characterized by the individual lacking the intention to do anything, which may result in disorganized activity and feelings of frustration, fear or depression. According to Moreno, González-Cutre and Chillón (2009), a clear example of this could be students that attempt to avoid participation. This attitude can be observed nowadays in PE classes, particularly at the secondary level. Physical inactivity is also a problem in the countries where this study was carried out (Vílchez, Ruíz-Juan, & García, 2017).

Causal attributions can influence academic performance (Miñano, 2009) and, also, participation in physical education during PE classes. Students' beliefs about the causes of their academic successes and failures affect their emotions and motivations. According to Navas, Holgado, Soriano and Sampascual (2008), Causal Attribution Theory is one of the most sophisticated and relevant models to explain student motivation in the classroom.

The theory proposes that, in achievement contexts, such as PE, positive or negative feelings ensue from the way outcomes are interpreted by individuals as successes or failures. The causes to which individuals attribute mainly their outcomes are capacity, effort, task difficulty and chance (Navas et al., 2008). However, other authors refer to causal attributions related to effort or capacity (Alvariñas, González & Santos, 2000). In the same vein, Vlachopoulos and Biddle (1997) state that it may not be possible to clearly separate capacity and effort. This is why the version of the theory with an internal dimension (doing something that it is not easy for others, effort, ability and capacity) and external (chance, low task difficulty or evaluation criteria that are not demanding) is gaining popularity and has been privileged in several studies (Chandler, Shama, Wolf & Planchard, 1981; Gencer, 2010; Lamont, Milner & Moore, 2003).

Causal attribution dimensions are related to affective reactions and expectations of success, which determine motivated behavior. Therefore, the causal attributions individuals make about their outcomes affect their future expectations of success and failure, which, in turn, affect the effort individuals put into what they are doing (Navas et al., 2008). It is then very useful to be aware of students' causal attributions during PE classes to be able to intervene and optimize motivation and learning.

In addition, it is important to take into account that PE has a stronger social component than other education settings, which is why there could also be social motives underlying students' success. Social goals could be defined as "cognitive representations of proposed and desired outcomes in the social domain" (González-Cutre, 2009, p. 5). Surprisingly, there are very few studies that have addressed social goals in PE (González-Cutre, Sicilia & Moreno, 2011; Moreno, Parra & González-Cutre, 2008). A responsibility goal reflects the student's desire to respect social norms and established roles, and a relation goal refers to the desire to maintain good social relations and friendship with peers. Moreno, González-Cutre and Sicilia (2007) posited that it is important during adolescence to account for social goals when assessing adherence to physical activity as it is a period when the influence of the peer group and social concerns increase. These two goal orientations are very relevant in the context of the present study as they are the ones reflective to a greater extent of persistence in and enjoyment of physical activity (Moreno, Parra & González-Cutre, 2008), one of the best predictors of physical activity participation in the future (Kalaja, Jaakkola, Liukkonen & Watt, 2010).

According to the previous, the aim of this study was to ascertain how social goals, perceived locus of causality, and attributions predict achievement goal orientations in students from different countries and cultures (figure 1).

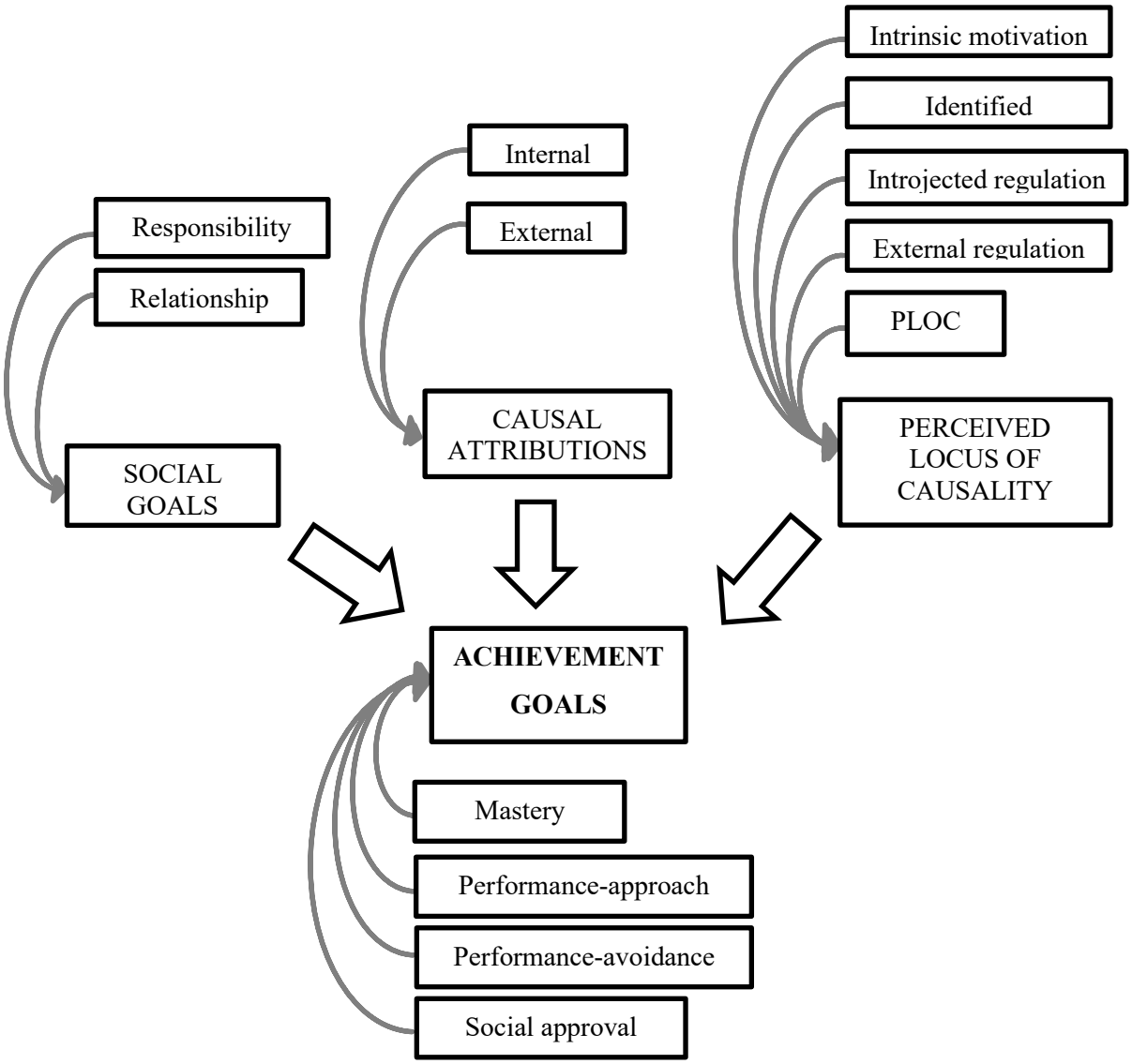

Figura 1. Hypothesized relationships between study constructs

METHODS

Participants

Participants were 2168 students from the first year of secondary education, who agreed to take part in a longitudinal study. By country, 423, 408, and 1337 represented Costa Rica, Mexico, and Spain, respectively. The age range of participants was 11-16 years (M_{age}=12.5, SD=0.8). In terms of gender, 50.4% were boys (M_{age}= 12.5, SD=0.9) and 49.6% girls (M_{age}=12.4, SD=0.7). Of these participants, 86% attended public schools and 13.4% private schools.

Procedures

Permission to carry out the study was sought from schools by means of a letter explaining the aims and procedures of the investigation. The letter included a copy of the study survey. The latter was subsequently administered to consenting students by trained research assistants during regular school hours.

Potential participants were informed about the aims of the study and ensured their identity would remain anonymous. Only assenting students who provided informed consent from a parent or tutor participated in the study. This study was approved by the Bioethics committee of the University of Murcia.

Instruments

Achievement Goals. A Spanish version (Ruiz-Juan, 2014) of the Achievement Goals Questionnaire (AGQ, Papaioannou et al., 2007), which assesses goal orientations in physical education, was used. The original instrument contains 24 items, grouped in four subscales: mastery, performance-approach, performance-avoidance, and social approval. Response options range from 1 (totally disagree) to 5 (totally agree).

Social Goals. These goals were assessed by means of a Spanish version (Moreno et al., 2007) of the Social Goal Scale-Physical Education (Guan, McBride, & Xiang, 2006), which assesses social responsibility goals (5 items) and social relationship goals (6 items) in physical education. Response options range from 1 (totally disagree) to 7 (totally agree).

Perceived locus of causality. A Spanish version (Moreno, González-Cutre & Chillón, 2009) of the *Perceived Locus of Causality Scale* (Goudas, Biddle & Fox, 1994) was used to assess the following motivational regulations in physical education, as per the tenets of self-determination theory: intrinsic motivation, identified regulation, external regulation, introjected regulation, and amotivation. The scale consists of 20 items with response options anchored from 1 (totally disagree) to 7 (totally agree). This instrument allows for the calculation of an index of self-determined motivation by combining the different subscales as follows: (2 x intrinsic motivation + identified motivation) – (introjected motivation + external motivation) / 2 + 2 x amotivation (Vallerand & Rousseau, 2001).
Attributions. The Attributions in Physical Education Questionnaire (Navas et al., 2008) was selected to evaluate causal attributions made by students during physical education lessons. It consists of seven items divided into two scales that assess internal (four items) and external (3 items) attributions. Response choices vary between 1 (totally disagree) and 7 (totally agree).

Psychometric properties of instruments

Analysis of psychometric properties of instruments followed guidelines by Carretero-Dios and Pérez (2005). No items were eliminated based on the item analysis of the four scales used in this study, as all items met the recommended criteria (corrected item-total correlations of ≥.30; standard deviation >1; all response options used). Homogeneity analyses indicated there was no overlap between dimensions from different scales. Skewness and kurtosis values ranged between zero and < 2.0, as recommended by Bollen and Long (1994), which is indicative of univariate normality.

Factorial validity of each instrument was examined by means of confirmatory factor analysis (CFA). Given the lack of multivariate normality in the data,

maximum likelihood was used to estimate the models, along with the bootstrapping technique to obtain robust standard errors. Model fit was assessed using a combination of absolute and relative fit indices. As shown in Table 1, all four models displayed values indicative of good fit of the model to the data across the different samples (Hoyle, 1995; Hu & Bentler, 1999; Kline, 1998). Standardized coefficients of correlation between items and latent factors varied between .64, and .99. All factor loads were >.60, and T-values >1.96, which attests the convergence validity of each of the instruments used in this study (Hair, Black, Babin, & Anderson, 2009). All subscales displayed satisfactory internal consistency reliability coefficients (α=.70 to .95).

Table 1. *Model Fit Indices.*

		χ^2/df	*TLI*	*IFI*	*CFI*	*RMSEA*	*SRMR*
Costa Rica (*n*=360)	Achievement goals (AGQ)	3.37	.90	.91	.91	.03	.04
	Social goals (EMSEF)	2.70	.99	.98	.98	.06	.02
	Perceived locus of causality (PLOC)	3.08	.96	.95	.96	.07	.04
	Causal attributions	4.82	.97	.94	.97	.07	.04
Mexico (*n*=389)	Achievement goals (AGQ)	2.96	.90	.91	.91	.04	.05
	Social goals (EMSEF)	4.07	.96	.94	.95	.07	.03
	Perceived locus of causality (PLOC)	4.27	.91	.90	.91	.07	.04
	Causal attributions	4.53	.96	.94	.96	.07	.04
Spain (*n*=1062)	Achievement goals (AGQ)	2.99	.95	.95	.94	.03	.03
	Social goals (EMSEF)	4.92	.99	.98	.99	.06	.01
	Perceived locus of causality (PLOC)	4.37	.96	.96	.96	.06	.04
	Causal attributions	4.21	.96	.94	.96	.07	.04
	Desirable values	*< 5*	*> .9*	*> .9*	*> .9*	*< .08*	*< .05*

Data Analysis

Further to the analyses previously reported to examine the psychometric properties of the study instruments, analysis of variance was used to test for mean differences in achievement goals, social goals, perceived locus of causality, and attributions across countries. Pearson bivariate correlations were calculated to examine the associations between the variables of interest. Subsequently, hierarchical linear regression was used to investigate the independent contribution of social goals, perceived locus of causality, and attributions to achievement goal orientations in each country separately. All statistical analyses (with exception of the CFAs) were conducted using SPSS, version 17.0. AMOS, version 21.0, was used for the CFAs.

RESULTS

As can be seen in Table 2, there were significant mean differences in each of the variables analyzed by country. Regarding achievement goal orientations, higher scores were observed for mastery orientation (*M*=4.40, *SD*=.58, Mexico) and lower scores for performance-avoidance (*M*=2.77, *SD*=.93, Spain) in the three countries. Likewise, students in Mexico scored higher in the four subscales, followed by students in Costa Rica and Spain.
Means for social goals in physical education were high and very similar in terms of responsibility and relationship variables across the three countries, with Mexican students (*M*=5.84, *SD*=1.17, *M*=5.82, *SD*=1.17, respectively) scoring slightly higher than students from Costa Rica and Spain.

Table 2. *Alpha coefficients, means and standard deviations for Achievement Goals (AGQ), Social Goals (EMSEF), Perceived Locus of Causality (PLOC) and Causal Attributions. Country differences.*

Scales (Subscales)	Costa Rica (*n*=360)			Mexico (*n*=389)			Spain (*n*=1062)			F	Sig.
	α	*M*	*SD*	*α*	*M*	*SD*	*α*	*M*	*SD*		
Achievement goals											
Mastery	.80	4.21	.73	.73	4.40	.58	.76	4.02	.72	43.67	.000
Performance-Approach	.82	3.35	1.03	.79	3.41	.99	.83	3.16	1.00	10.79	.000
Performance-Avoidance	.83	2.81	1.08	.76	2.94	1.01	.77	2.77	.93	4.32	.013
Social Approval	.78	3.34	.94	.78	3.46	.89	.80	3.27	.90	6.46	.002
Social goals											
Responsibility	.90	5.49	1.26	.89	5.84	1.17	.92	5.44	1.32	14.15	.000
Relationship	.88	5.42	1.23	.94	5.82	1.17	.93	5.48	1.28	12.64	.000
Perceived locus of causality											
Intrinsic motivation	.92	5.40	1.48	.85	5.95	1.10	.90	5.36	1.36	28.43	.000
Identified regulation	.79	5.33	1.34	.74	5.77	1.14	.87	5.04	1.46	40.77	.000
Introjected regulation	.81	5.03	1.44	.77	5.55	1.23	.81	4.75	1.40	47.36	.000
External regulation	.89	4.63	1.66	.79	5.21	1.38	.79	4.39	1.48	42.06	.000
Amotivation	.93	4.11	1.85	.85	4.39	1.76	.91	3.37	1.72	57.40	.000
ISD PLOC	.95	3.04	5.25	.93	3.34	4.43	.93	4.13	5.53	7.25	.001
Causal attributions											
Internal	.86	4.12	.88	.77	4.32	.63	.79	3.94	.81	33.73	.000
External	.72	3.54	1.06	.70	3.69	.93	.76	3.17	.96	47.90	.000

*(p<.05), **(p<.01), ***(p<.001)

In terms of perceived locus of causality, students in Mexico score again higher than students in Costa Rica and Spain in each of the subscales, although differences were not large. Across all countries, a considerable mean increase

was observed in parallel to increases in levels of self-determination, as illustrated by students from Mexico whose mean values for amotivation were 4.39 (SD=1.76) and 5.95 (SD=1.10) for intrinsic motivation. However, Spanish students had a higher self-determination index (*M*=4.13, *SD*=5.53), particularly compared with students from Costa Rica (*M*=3.04, *SD*=5.25).

Internal causal attributions were high in the three countries, with slightly higher values in Mexico (*M*=4.32, *SD*=.63). Means were lower for external causal attributions, with Spanish students displaying the lowest means (*M*=3.17, *SD*=.96).

Table 3 shows the bivariate correlations between achievement goal orientations, social goals, perceived locus of causality and attributions. Results were consistent across countries. All correlations between factors corresponding to achievement and social goals in physical education were positive, except the correlation between mastery and performance-avoidance. Furthermore, mastery, performance-approach, and social approval have low-to-moderate positive correlations with the remaining variables, except mastery, which is negatively related to amotivation. Finally, performance-avoidance is positively correlated only with social relationship, introjected motivation, external motivation, amotivation and external causal attributions. Likewise, it is noteworthy that external causal attributions had the lowest bivariate correlation coefficients.

Table 3. *Correlations between subscales for achievement goals (AGQ), social goals (EMSEF), perceived locus of causality (PLOC) and causal attributions. Country differences.*

	Costa Rica (*n*=360)				Mexico (*n*=389)				Spain (*n*=1062)			
	MAS	*P-AP*	*P-A*	*S-A*	*MAS*	*P-AP*	*P-A*	*S-A*	*MAS*	*P-AP*	*P-A*	*S-A*
Achievement goals												
Mastery	1	,30**	-,01	,38**	1	,14**	-,06	,19**	1	,28**	-,02	,36**
Performance-Approach		1	,39**	,63**		1	,29**	,59**		1	,32**	,66**
Performance-Avoidance			1	,52**			1	,42**			1	,37**
Social-Approval				1				1				1
Social goals												
Responsibility	,50**	,24**	,08	,27**	,30**	,13**	,03	,19**	,47**	,13**	,04	,25**
Relationship	,35**	,17**	,16**	,31**	,29**	,18**	,10*	,25**	,36**	,15**	,09**	,24**
Perceived locus of causality												
Intrinsic motivation	,46**	,28**	,08	,32**	,24**	,13**	,03	,19**	,51**	,20**	-,00	,26**
Identified motivation	,49**	,30**	,09	,33**	,30**	,10*	,00	,18**	,53**	,20**	,02	,27**
Introjected regulation	,48**	,38**	,21**	,46**	,19**	,14**	,16**	,27**	,39**	,35**	,22**	,44**
External regulation	,21**	,27**	,32**	,34**	,13**	,26**	,20**	,31**	,18**	,27**	,25**	,36**
Amotivation	-,13*	,24**	,35**	,34**	-,10*	,12*	,18**	,13**	-,08**	,23**	,27**	,23**
Causal attributions												
Internal	,48**	,35**	,08	,34**	,28**	,24**	,01	,18**	,43**	,32**	-,01	,32**
External	,18**	,25**	,21**	,32**	,12*	,15**	,17**	,16**	,07*	,18**	,08**	,18**

*(p<.05), **(p<.01)
MAS=Mastery, P-AP=Performance-Approach, P-A= Performance-Avoidance, S-A=Social-Approval

Multivariate regression analyses examined the independent contribution of social goals, perceived locus of causality and attributions to achievement goal orientations (mastery, performance-approach, performance-avoidance, and social approval) in each country separately. The resulting models explained between 29% and 63% of the variance in the dependent variables (Table 4).

Table 4. *Multivariate linear regression analyses: models predicting achievement goals (AGQ) from social goals (EMSEF), perceived locus of causality (PLOC) and causal attributions, by country.*

	Costa Rica (*n*=360)				México (*n*=389)				España (*n*=1062)			
	MAS	*P-AP*	*P-A*	*S-A*	*MAS*	*P-AP*	*P-A*	*S-A*	*MAS*	*P-AP*	*P-A*	*S-A*
	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*	$Beta^{Sig}$ *n*
Social goals												
Responsibility	.27***	.02	-.02	-.05	.15*	.00	-.00	-.04	.17***	-.08	-.00	.04
Relationship	-.15*	-.11	.10	.05	-.13*	.11	.08	.11	-.07*	.01	.04	.00
Perceived locus of causality												
Intrinsic motivation	.18**	.07	-.04	.05	.16**	.06	-.09	-.03	.16***	.00	-.08	-.01
Identified motivation	.15*	.05	-.01	.05	.15*	-.11	-.10	-.03	.20***	-.00	-.03	-.03
Introjected regulation	.03	.23**	.15*	.22**	-.09	.15*	.17**	.17**	.02	.26***	.26***	.29***
External regulation	-.13*	-.03	.11	.16*	.07	.30***	.09	.23**	-.00	.01	.05	.10**
Amotivation	.08	.15*	.22**	.19**	-.16**	.16**	.15*	-.05	-.04	.13***	.18***	.09**
Causal attributions												
Internal	.27***	.20**	-.13*	.14*	.21***	.19**	-.12*	.14*	.19***	.21***	-.11**	.13***
External	-.01	.08	.16*	.12*	.00	.04	.13*	.15*	-.00	.04	.06*	.06*
	R^2=.63 F=24.69	R^2=.47 F=10.78	R^2=.39 *F*=6.60	R^2=.53 *F*=14.94	R^2=.41 *F*=8.65	R^2=.35 *F*=5.96	R^2=.29 *F*=3.97	R^2=.36 *F*=6.23	R^2=.60 *F*=63.97	R^2=.44 *F*=28.31	R^2=.37 *F*=17.96	R^2=.50 *F*=37.55

*(p<.05), **(p<.01), ***(p<.001)

MAS=Mastery, P-AP=Performance-Approach, P-A= Performance-Avoidance, S-A=Social-Approval

In the three countries, mastery is positively associated with responsibility, intrinsic motivation, identified regulation and internal attributions, and negatively associated with social relationships. Furthermore, in Costa Rica, mastery was negatively associated with external regulation (63% of variance explained) and in Mexico with amotivation (41% of variance explained).

In Costa Rica and Spain performance-approach was positively associated with introjected motivation, amotivation, and internal attributions, (38% of variance explained in Costa Rica, and 30% in Spain), and with external regulation in Mexico.

In the three countries, performance-avoidance was positively associate with introjected regulation, amotivation, and external attributions, and negatively associated with internal attributions (39% of variance explained in Costa Rica, 29% in Mexico, and 37% in Spain).

Finally, the models examining social approval as outcome are very similar in the three countries and highlight the significant effects of higher scores in introjected regulation, external regulation, amotivation, internal attributions and external attributions, with the exception of Mexico, where amotivation did not

reach significance (53% of variance explained in Costa Rica, 36% in Mexico, and 50% in Spain).

DISCUSSION

This study investigated the association of social goals, perceived locus of causality, and causal attributions with achievement goal orientations among secondary students in Costa Rica, Mexico, and Spain. One strength of this work is the use of the AGQ instrument, which has not been used often with secondary students to date. The large sample used and the transcultural nature, allowing for comparisons across countries representing different cultural contexts, are other notable strengths of this study.

Consistent with other studies using similar samples (Méndez-Giménez, Fernández-Río, Cecchini & González, 2013), in the three countries the highest means corresponded to the mastery orientation and the lowest to the performance-avoidance orientation. By country, highest means in the orientations considered were observed in Mexico, Costa Rica, and Spain, in this order.

In all countries, participants were characterized by a predominantly self-determined profile, displaying highest means in intrinsic motivation and lowest in amotivation. The means of the motivational regulations considered show the same tendency in all three countries, with lower means corresponding to less self-determined forms of motivation. This is very positive from the point of view of one of the main purposes of PE, which is to facilitate enjoyable physical activity experiences so that participants may want to continue its practice in the future. There are many studies that have looked at intrinsic motivation, and have concluded that this variable is strongly related to adherence to physical activity (Martínez et al., 2012), and is also related to other variables that have a positive impact on physical activity participation, such as student satisfaction with PE (Standage, Duda & Ntoumanis, 2003), enjoyment (Fernández, Sánchez & Salinero, 2008; Lyu & Gil, 2011; Scarpa, Capraro, Gobbi & Nart, 2012), effort (Wiersma & Sherman, 2008), or student involvement in PE (Ning, Gao & Lodewyk, 2013).

In terms of enjoyment, an index of self-determination (ISD) has also been used to examine its predictive value. Moreno and González-Cutre (2006) found that the ISD was positively associated with enjoyment of physical activity, while Marcos, Orquín, Belando & Moreno (2014) concluded that it was positively associated with the endorsement of fitness and health-related motives to participate in physical activity. In the present study, high ISD means were observed in the three countries, which is consistent with the predominantly self-determined profile of participants in this study, particular in the case of the Spanish ones. This index is also of interest because it has been found to predict the intention of being physically active (Fernández-Ozcorta, Almagro & Sáenz-López, 2015).

The variables mentioned are also related to internal causal attributions in terms of effort, aptitude and skill displayed by students (Navas et al., 2008). In the current sample, in all countries, internal attributions were more frequent than external attributions in PE.

Students in Mexico and Costa Rica had higher means in responsibility whereas Spanish students scored higher in the relationship dimension. Due probably to cultural reasons, Latin American students in the sample felt successful when they respect social norms and fulfill set roles, while Spanish students were eager to make friends and develop good relationships with peers in PE classes. This is an important factor to consider when planning PE classes because, as Férriz, González-Cutre and Sicilia (2015) noted, knowledge of the motivational processes that underlie young people's adherence to physical activity is one of the primary goals of research on motivation in physical activity. Both goals are associated with positive consequences, such as effort, persistence, intrinsic motivation and satisfaction (Guan, McBride & Xiang, 2007) and we found that, generally, students in this sample endorsed both goals, irrespective of their country of origin.

In all three countries, a mastery orientation was significantly associated with intrinsic motivation and with identified regulation (the most self-determined form of extrinsic motivation examined in this study). Self-determined motivational regulations, such as intrinsic motivation, integrated regulation, and identified regulation, have also been associated in the literature with an active and healthy lifestyle (Ferriz, González-Cutre & Sicilia, 2015).

Mastery is a desirable goal orientation in PE because it is associated with involvement in physical activity and sport, particularly during adolescence, and this may track into adulthood (Piéron & Ruiz-Juan, 2010; Baena-Extremera, Granero-Gallegos, Sánchez-Fuentes & Martínez-Molina, 2013). Wang, Lir, Chatzisarantis and Lim (2010) argued that a mastery orientation could foster intrinsic interest in PE, as well as have a positive effect on enjoyment of physical activity during PE classes, which, as noted, is in turn associated with adherence to physical activity.

The ISD was high in all countries, particularly in Spain. In line with other work (Fernández-Ozcorta, Almagro & Sáenz-López, 2015), a strong association between mastery and the ISD was observed, which may indicate that both are important with regards to enjoying physical activity and maintaining such behavior.

Furthermore, if external regulation is low, in those students who are less extrinsically motivated, a mastery orientation is predicted, and in Mexico with amotivation. This is consistent with other studies concluding that non-self-determined forms of motivation (external regulation, introyected regulation, and amotivation) are generally related to negative outcomes such as discontinuing participation in physical activity (Ferriz, González-Cutre & Sicilia, 2015).

In all three countries, we also found that a mastery orientation was associated with internal attributions. This finding stands in line with previous studies which also indicated that a mastery goal induces attributions based on effort after completing a task (Vlachopoulos & Biddle, 1997). A practical implication of such causal attributions is for PE teachers to plan activities intended to elicit a mastery orientation, intrinsic motivation, and internal attributions in students. This way, students would be more likely to persist when faced when challenges, show more interest for learning activities, and apply effort (Navas & Soriano, 2006; Navas et al., 2008; Vlachopoulos & Biddle, 1997). In this regard, it noteworthy that Alvariñas (2004) reported that more active students made more adaptive attributions, and that there was a relationship between such attributions and out of school physical activity.

In all three countries, in the multivariate regression analyses, a mastery orientation was positively associated with the responsibility dimension and negatively associated with the relationship dimension. However, as expected, bivariate correlations showed a positive and moderate association between a mastery orientation and relationship goals. This finding echoes previous research in PE that has addressed correlations between social goals and other motivational constructs (González-Cutre, Sicilia & Moreno, 2011). The literature suggests that a mastery orientation can have a positive impact on the development of relationship and responsibility goals (González-Cutre, Sicilia, Moreno & Fernández-Balboa, 2009) and that both goals are related to positive consequences such as effort, persistence, intrinsic motivation and satisfaction (Guan, McBride & Xiang, 2007). However, the responsibility goal is associated with greater effort among students during PE classes (Moreno-Murcia, Cervelló, Montero, Vera & García, 2012), which suggests that, if the aim is to increase effort, strategies should be developed to foster responsibility goals among students.

Both in Costa Rica and Spain, performance approach goals were associated with introjected regulation and amotivation. Likewise, in both countries, but particularly in Costa Rica, performance-approach was associated with internal attributions, and also the correlation between performance-approach and internal attributions is high. In Mexico, performance-goals were related to external regulations. These findings differ from those of Navas, Soriano, Hogado and López (2009), who argued that external causal attributions were made by students endorsing performance goals because they attribute their outcomes to external causes, and see involvement in the activity as a means to improve their social life, gain social recognition and popularity. Another possible explanation is that external attributions entail less enthusiastic participation and greater tendency to disengage from sport practice (Cervelló, Escartí & Balagué, 1999; García Calvo, Santos-Rosa, Jiménez & Cervelló, 2005; Navas et al., 2008; Navas et al., 2009), which in turn may be related with less self-determined motivation, as previously noted.

In the three countries, performance-avoidance is positively associated with introjected regulation, amotivation, and external attributions, and negatively associated with internal attributions. These findings are consistent with the bivariate analysis, where performance-avoidance is positively correlated with

introjected motivation, external regulation, amotivation, external attributions, and, in addition, the relationship social goal. Ferriz, González-Cutre and Sicilia (2015) refer to external regulation as the type of motivation that drives students to respond to external incentives (e.g., avoid punishment or obtain a reward), and to introjected regulation as the type of motivation where students start to internalize behaviors, even if it is to avoid feelings of guilt. To explain this relationship, Ruiz-Juan and Piéron (2013) state that ego-oriented students are at risk of displaying maladaptive behaviors because by comparing themselves with others as the way to judge about their success, improvement or progress is not sufficient to elicit feelings of competence. These students try to avoid looking incompetent or to fail when engaged in physical activity and sport.

Social approval is associated in the three countries with introjected regulation, external regulation and, with exception of Mexico, amotivation. These findings can be explained by taking into account the nature of this goal orientation since, according to Ruiz-Juan (2014) a common characteristic of social approval and performance goals is that achievement is based on criteria determined by others. This goal orientation has not been often addressed in the literature and analysis of its association with other variables will allow us to examine the consequences of success in social relations, which vary across cultures (Ruiz-Juan, 2014). According to Navas et al. (2009), achievement goals have its origin both in the individual and contexts and, often, they are determined and defined by the social context.

We also found that social approval is associated in all countries with internal and external attributions. This circumstance makes sense when attributions have a social connotation. Students oriented toward social approval make internal attributions because they attribute the difficulty of the task based on whether it is easy or difficult for others, and also external attributions when comparing activity criteria to whether the established social standard is demanding or not.

The findings from the present study show significant associations that have implications when planning PE classes. Although in early adolescence participation motives tend to be intrinsic (Cañabate, Torralba, Cañón & Zagalaz, 2015), leisure time physical activity levels are typically low and drop out increases (Piéron & Ruiz-Juan, 2010). However, PE is an optimal educational context to start changing leisure time physical activity patterns during this period (Vílchez & Ruiz-Juan, 2016). To maintain this intrinsic motivation and promote adherence to sports practice in the future, the goal of mastery stands out. To predict this goal, the results of this study suggest that PE promotes, among others, internal attributions or the social goal of responsibility, whether for example in the planning of activities, teacher feedback or in the evaluation system.

This line of research is interesting to understand attitudes and behaviors of scholars. For example, Granero-Gallegos and Baena-Extremera (2014) concluded that the main predictor of self-determination for boys during PE classes is a performance oriented climate, while in girls it is a learning-oriented

climate. It is then important to continue examining other influential variables affecting student motivation in PE.

REFERENCES

Alvariñas, M., González, V. & Santos, M. (2000). *Atribución causal y estructuras de aprendizaje en Educación Física*. Actas del V Congreso Galego-Portugués de Psicopedagoxía, 6, 909-918. Galicia.

Amado, D., Leo, F. M., Sánchez-Oliva, D., González, I., & López, J. M. (2012). ¿Es compatible el deporte en edad escolar con otros roles sociales? Un estudio a través de la Teoría de la Autodeterminación. *Retos, 21*, 50-52.

Bollen, K. A. & Long, J. (1994). *Testing structural equation models*. Newbury Park, CA: Sage.

Cañabate, D., Torralba, J. P., Cañónm J, & Zagalaz, M. L. (2015). Motivational profiles in physical education sessions. *Retos, 26*, 34-39.

Carretero-Dios, H. & Pérez, C. (2005). Normas para el desarrollo y revisión de estudios instrumentales. *International Journal of Clinical and Health Psychology, 5*, 521-551.

Chandler, T., Shama, D., Wolf, F. & Planchard, S. (1981). Multiattributional causality for social affiliation across five cross-national samples. *The Journal of Psychology, 107*, 219-229.

Deci, E. & Ryan, R. (1985). *Intrinsic Motivation and Self-Determintion in Human Behavior*. Nueva York: Plenum Press.

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

Fernández, E., Sánchez Bañuelos, F. y Salinero, J. (2008). Validación y adaptación de la escala PACES de disfrute con la práctica de la actividad física para adolescentes españolas. *Psicothema, 20*(4), 890-895.

Fernández-Ozcorta, E. J., Almagro, B. & Sáenz-López, P. (2015). Predicting intention to remain physically active in university students. *Cuadernos de Psicología del Deporte, 15*(1), 275-284.

Ferriz, R., González-Cutre, D. & Sicilia, A. (2015). Revisión de la Escala del Locus Percibido de Causalidad (PLOC) para la Inclusión de la Medida de la Regulación Integrada en Educación Física. *Revista de Psicología del Deporte, 24*(2), 329-338.

García Calvo, T., Santos-Rosa, F. J., Jiménez, R. & Cervelló, E. (2005). El clima motivacional en las clases de Educación Física: una aproximación práctica desde la Teoría de Metas de Logro. *Apunts, 81*, 21-28.

Gencer, E. (2010). The relationship between locus of control, self-esteem and goal orientation, motivational climate in badminton players. *Science, movement and health, 10*(2), 157-162.

Gómez-Rijo, A., Gámez, S. y Martínez, I. (2011). Efectos del género y la etapa educativa del estudiante sobre la satisfacción y la desmotivación en Educación Física durante la Educación Obligatoria. *Ágora para la Educación Física y el Deporte, 2*(13), 183-196.

González-Cutre, D. (2009). *Motivación, creencias implícitas de habilidad, competencia percibida y flow disposicional en clases de educación física* (Tesis doctoral). Murcia. Universidad de Murcia.

González-Cutre, D., Sicilia, A. & Moreno, J. A. (2011). Un estudio cuasiexperimental de los efectos del clima motivador tarea en las clases de Educación Física. *Revista de Educación, 356*, 677-700.

Goudas, M., Biddle, S., & Fox, K. (1994). Perceived locus of causality, goal orientations, and perceived competence in school physical-education classes. *British Journal of Educational Psychology, 64*(3), 453-463.

Granero-Gallegos, A. & Baena-Extremera, A. (2014). Prediction of self-determined motivation as goal orientations and motivational climate in Physical Education. *Retos, 25*, 23-27.

Granero-Gallegos, A., Baena-Extremera, A., Sánchez-Fuentes, J. A. & Martínez-Molina, M. (2014). Spanish Version of the Learning Climate Questionnaire Adapted to Physical Education. *Psychology/Psicologia Reflexão e Crítica, 27*(4), 625-633. DOI: 10.1590/1678-7153.201427403

Guan, J., McBride, R. & Xiang, P. (2007). Reliability and Validity Evidence for Achievement Goal Models in High School Physical Education Settings. *Measurement in Physical Education and exercise Science , 2*(11), 109-129.

Guan, J., McBride, R. E., & Xiang, P. (2006). Reliability and Validity Evidence for the Social Goal Scale-Physical Education SGS-PE) in High School settings. *Journal of Teaching in Physical Education, 25*, 226-238.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7th ed.). New York: Pearson Prentice Hall.

Hoyle, R. H. (1995). *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: Sage.

Hu, L. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Kalaja, S., Jaakkola, T., Liukkonen, J. & Watt, A. (2010). The Role of Gender, Enjoyment,Perceived Physical Activity Competence, and Fundamental Movement Skills as Correlates of the Physical Activity Engagement of Finnish Physical Education Students. *Scandinavian Sport Studies Forum, 1*, 69- 87.

Kline, R. (1998). *Principles and practice of structural equation modeling*. New York: Guilford.

Lamont, A., Milner, H. & Moore, J. (2003). Effects of Locus of Control on African American High SchoolSeniors' Educational Aspirations: Implications for Preservice andInservice High School Teachers and Counselors. *High School Journal, 87*(1), 39-50.

Lyu, M. & Gil, D. L. (2011). Perceived physical competence, enjoyment, and effort in same-sex and coeducational physical education classes. *Educational Psychology, 31*, 247-260.

Marcos, P., Orquín, F. J., Belando, N. & Moreno, J. A. (2014). Self-determination motivation in elderly practitioners of physical exercise. *Cuadernos de Psicología del Deporte, 14*(3), 149-156.

Martínez Baena, A. C., Chillón, P., Martín-Matillas, M., Pérez López, I., Castillo, R., Zapatera, B., Vicente-Rodríguez, G., Casajús, J. A., Álvarez-Granda, L., Romero Cerezo, C., Tercedor, P. & Delgado Fernández, M. (2012). Motivos de Práctica de Actividad Físico-Deportiva en Adolescentes

Españoles: Estudio Avena. *Profesorado: revista de currículum y formación del profesorado, 16*(1), 391-398.

Méndez-Giménez, A.; Fernández-Río, J.; Cecchini, J. A. & González, C. (2013). Perfiles motivacionales y sus consecuencias en educación física. Un estudio complementario de metas de logro 2x2 y autodeterminación. *Revista de Psicología del Deporte 22*(1):29-38

Miñano, P. (2009). *Un Modelo causal-explicativo sobre la incidencia de las variables cognitivo-motivacionales en el rendimiento académico* (Tesis doctoral). Alicante: Universidad de Alicante.

Moreno, J. A, & González-Cutre, D. (2006). Predicción del disfrute en el ejercicio físico según la orientación disposicional y la motivación autodeterminada. *Análisis y Modificación de Conducta, 32*, 767-780.

Moreno, J. A., González-Cutre, C. & Chillón, M. (2009). Preliminary Validation in Spanish of a Scale Designed to Measure Motivation in Physical Education Classes: The Perceived Locus of Causality (PLOC) Scale. *The Spanish Journal of Psychology, 12*(1), 327-337.

Moreno, J. A., González-Cutre, D. & Sicilia, A. (2007). Metas sociales en las clases de Educación Física. *Análisis y Modificación de Conducta, 33*, 351-368.

Moreno, J., Parra, N. & González-Cutre, D. (2008). Influencia del apoyo a la autonomía, las metas sociales y la relación con los demás sobre la desmotivación en educación física. *Psicothema, 20*(4), 636-641.

Moreno-Murcia, J. A., Cervelló, E., Montero, C., Vera, J. A. & García, T. (2012). Metas sociales, necesidades psicológicas básicas y motivación intrínseca como predictores de la percepción del esfuerzo en las clases de educación física. *Revista de Psicología del Deporte, 21*(2), 215-221.

Navas, L. & Soriano, J. (2006). Metas, atribuciones y sus relaciones en las clases de Educación Física. *Infancia y Aprendizaje, 29*(4), 411-421.

Navas, L., Holgado, F. P., Soriano, J. A. & Sampascual, G. (2008). El cuestionario de atribuciones para educación física: análisis exploratorio y confirmatorio. *Acción Psicológica, 5*(2), 77-85.

Navas, L., Soriano, J. A., Holgado, F. P. y López, M. (2009). Las orientaciones de meta de los estudiantes y los deportistas: perfiles motivacionales. *Acción psicológica, 6*(2), 17-29.

Ning, W., Gao, Z. & Lodewyk, K. (2013). Associations between Socio-Motivational Factors, Physical Education Activity Levels and Physical Activity Behavior among Youth. *International Council for Health, Physical Education, Recreation, Sport, and Dance Journal of Research, 1*(7), 3-10.

Pannekoek, L., Piek, J. P. & Hagger, S. (2014). The Children's Perceived Locus of Causality Scale for Physical Education. *Journal of Teaching in Physical Education, 33*, 162-185.

Papaioannou, A.G., Tsigilis, N., Kosmidou, E. & Milosis, D. (2007). Measuring perceived motivational climate in physical education. *Journal of Teaching in Physical Education, 26*, 236-259.

Piéron, M. & Ruiz Juan, F. (2010). *Actividad físico-deportiva y salud. Análisis de los determinantes de la práctica en alumnos de Enseñanza Secundaria*. Madrid: Consejo Superior de Deportes Subdirección General de Promoción Deportiva y Deporte Paralímpico.

Ruiz-Juan, F. (2014). Propiedades psicométricas de la versión en español del Achievement Goals Questionnaire. *Anales de psicología, 30*(2), 745-755.

Scarpa, S., Capraro, A., Gobbi, E. & Nart, A. (2012). Peer-victimization during physical education and enjoyment of physical activity. *Perceptual and Motor Skills, 115*, 1, 319-324.

Standage, M., Duda, J. L. & Ntoumanis, N. (2003). Predicting motivational regulations in physical education: The interplay between dispositional goal orientations, motivational climate and perceived competence. *Journal of Sports Sciences, 21*, 631-647.

Vallerand, R. J., & Rousseau, F. L. (2001). *Intrinsic and extrinsic motivation in sport and exercise. A review using the hierarchical model of intrinsic*. En R. M. Singer, H. A. Hausenblas y C. M. Janelle (Eds.), Handbook of Sport Psychology (2nd ed., pp. 389-416). New York: Wiley & Sons.

Vílchez, P. & Ruiz-Juan, F. (2016). Motivational climate in physical education and sport and physical activity in leisure of students from Spain, Costa Rica and Mexico. *Retos, 29*, 195-200.

Vílchez, P., Ruíz-Juan, F., & García, M. E.(2017). Estudio transcultural de la percepción de competencia escolar y tiempo de ocio. *International Journal of Medicine and Science of Physical Activity and Sport, 17*(67), 573-587.

Vlachopoulos, S. & Biddle, S. (1997). Modeling the relation of Goal Orientation to achievement-related affect in Physical Education: Does Perceived Ability Matter?. *Journal of Sport and Exercise Psychology, 19*, 169-187.

Wang, J., Liu, W. C., Chatzisarantis, N. & Lim, C. (2010). Influence of Perceived Motivational Climate on Achievement Goals in Physical Education: A Structural Equation Mixture Modeling Analysis. *Journal of Sport and Exercise Psychology, 32*, 324-338.

Wiersma, L. D. & Sherman, C. P. (2008). The Responsible Use of Youth Fitness Testing to Enhance Student Motivation, Enjoyment, and Performance. *Measurement in Physical Education and Exercise Science, 12*, 167–183.

Número de citas totales / Total references: 53 (100%)
Número de citas propias de la revista / Journal's own references: 1 (1,88%)