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ORIGINAL

TRANSCULTURAL PREDICTION OF MOTIVATIONAL CLIMATE IN PHYSICAL EDUCATION

PREDICCIÓN TRANSCULTURAL DEL CLIMA MOTIVACIONAL EN EDUCACIÓN FÍSICA

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ABSTRACT

The aim of this research was to understand how social goals, perceived locus of causality and causal attribution predict perceived motivational climate in Physical Education students in different countries and cultures. The sample consisted of 2168 students from three different countries, belonging to Costa Rica 423, 408 to Mexico with a total of 1052 students in Spain, all aged between 11 and 16 years. A questionnaire with motivational scale Climate, Social Goals in Physical Education, Perceived Locus of Causality and Causal Attribution were used. Descriptive analyzes, correlational and multivariate linear

regression were performed. The goal of mastery was higher in all countries, being predicted by the responsibility and intrinsic motivation. Avoidance-performance was the lowest, predicted by introjected regulation and amotivation. The Spanish students stand out as the most self-determined, with Mexicans who have more internal attributions.

KEYWORDS*:* motivation, teenager, responsibility, performance, mastery.

RESUMEN

El objetivo fue conocer como las metas sociales, el locus percibido de causalidad y la atribución causal, predicen el clima motivacional percibido en los alumnos de EF en diferentes países y culturas. La muestra fue de 2168 estudiantes de tres países diferentes (423 de Costa Rica, 408 de México y 1052 de España), todos ellos con edades comprendidas entre 11 y 16 años. Se utilizó un cuestionario compuesto por la escala de Clima motivacional, la de Metas Sociales en Educación Física, el Locus Percibido de Causalidad y la Atribución Causal. Se realizaron análisis descriptivos, correlacionales y una regresión lineal multivariante. La meta de maestría fue mayor en todos los países, siendo predicha por la responsabilidad y la motivación intrínseca. El rendimiento-evitación fue la más baja, siendo predicha por la regulación introyectada y la amotivación. Los españoles destacan como los más autodeterminados, siendo los mexicanos los que mayor atribuciones internas presentan.

PALABRAS CLAVE*:* motivación, adolescente, responsabilidad, rendimiento, maestría.

INTRODUCTION

In recent years, the study of psycho-educational variables that may affect students has aroused great interest among researchers. These variables affect students' motivation and, consequently, educational practice (Baños, Ortiz-Camacho, Baena-Extremera and Tristán-Rodríguez, 2017), and sports or leisure activities (Vilchez, Ruiz-Juan and García, 2017). Among the most commonly used theories are Self-Termination Theory (Deci and Ryan, 1985) or Achievement Goal Theory (Nicholl, 1989).

In the case of the first theory, several studies have demonstrated the importance of the student's motivation (Baena-Extermera, Gómez-López, Granero-Gallegos, and Ortiz-Camacho, 2015). But what kind of motivation is the most interesting? Following the continuum of the motivation of the organic integration sub-theory of self-determination (Deci and Ryan, 1985), we can speak of the following types of motivation (Deci and Ryan, 1985, 2000, Ryan, 1995, Chantal, Vallerand, and Vallières, 2001): intrinsic motivation (it involves a commitment to that behavior thanks to the pleasure and the enjoyment it gives, making it an end in itself), external regulation (the least self-determined, where

behavior is performed to satisfy an external demand, or for the existence of rewards or rewards), introjected regulation (where the student seeks social recognition from participation), identified regulation (where the student judges behavior as important, perceiving it as own) and amotivation. As we will see later, some of these types of motivation will be related to the rest of the variables of this study within the academic field.

The second theory is already known from existing investigations (Cañaba-te, Torralba, Cachón, and Zagaláz, 2014, Sevil, Julián, Abarca, Aibar and García-González, 2014) and for its theoretical foundation based on the study of dispositional and environmental factors that influence students' achievement motivation. The goals of an individual (a student in our case) are based on demonstrating some competence and a certain ability in different contexts of achievement (Díaz and Aguado, 2012, Dweck, 1986), as in the Physical Education (PE) class. In this demonstration, social goals play an important role in the study of achievement goals. Following Guan, McBride and Xiang (2006), two social goals have been described in PE, the goal of responsibility (representing the desire to adhere to the social rules and expectations of the peer group) and the goal of relationship as the individual desires to form and maintain positive relationships with peers) (Patrick, Hicks, and Ryan, 1977; Wentzel, 1989 o 1991).

The motivational climate created by the PE teacher during classes is among the environmental factors used in this theory. This climate, according to authors such as Ntoumanis and Biddle (1999), can be responsible for the success and failure of students in academic tasks, including academic achievement (Sevil, Aibar, Abós, and García, 2017). For example, when the teacher creates a climate where success and failure are defined by comparison with the performance of their peers, students will adopt a performance orientation; on the other hand, when the teacher seeks to get the student to compare his work with his own work, a mastery orientation will prevail in the students (Ruiz-Juan, 2014). In this way, mastery is a task orientation, where students base their work in class on effort and improvement in their task performance, whereas the goal of performance would be more ego oriented, where students would seek to achieve good results in class, showing that they are better than their classmates (Ames, 1992; Nicholls, 1989).

From these ideas of performance and mastery, Elliot (1999) and Elliot and McGregor (2001), created the 2x2 model of achievement goals, which took into account not only the form of competition, but also its value (approach-avoidance), resulting in four possible goals: approach-mastery, approach-performance, avoidance-mastery and avoidance-performance. Some years later, Papaioannou, Tsigilis, Kosmidou and Milosis (2007) found difficulties in correctly identifying avoidance-mastery of avoidance-performance in the students, leading these authors to transform the 2x2 model into a tricotomic model composed of one goal of mastery-approach, another of performance-approach and a third of performance-avoidance. In addition to the stated goals, social approval has been a third goal included by Maehr and Nicholls (1980) in

the original model, presenting different motivational consequences on the other two goals (Papaioannou et al., 2007). According to these authors, mastery goals and the goal of social approval facilitate in the student a behavior focused on the achievement of intrinsic motivation and the influence of the motivational climate in the development of social goals. This means that mastery and social approval have an important relationship with the motivation of students in the classroom.

The Causal Attribution Theory (Weiner, 1986, 1992, 1995) can help us find new explanations for student behavior. Thus, in the contexts of achievement highlighted in this work on PE classes, the attributional model begins with the student's interpretation of the academic result, with a positive or negative feeling about this interpretation (Navas, Holgado, Soriano, and Sampascual, 2008). In this way, when the student is successful in the tasks, he can attribute it to his ability and / or his effort (internal attribution); and in case of failure, he can interpret it to the difficulty of the task and / or luck (external attribution). In recent years, the use of this theory has shown that one of the important factors in school performance is the attribution that the students make about their academic success or failure (Mascarenhas, Almeida, and Barca, 2005), since students always tend to associate causes and events (Malico, Rosado, Cabrita, and Lancho, 2010). When the student determines this cause, he or she places it in a causal dimension, and this is closely related to affective reactions and expectations of success. However, there is little work done in the sport context (Malico, et al., 2010), and even less in PE.

The interesting thing about these theoretical perspectives is that they can help explain, and even predict, certain beliefs, responses and behaviors of students in situations of attainment (Wang, Biddle and Elliot, 2007). For example, following Ruiz-Juan (2014), when the student is oriented to the mastery-approach, he would present a search behavior of learning and personal development of his abilities, this goal being negatively related to the state of anxiety and amotivation (Cecchini, González, Méndez-Giménez, and Fernández-Río, 2011; Conroy, Kaye, and Coatsworth, 2006; Gao, Podlog, and Harrison, 2012). When the student is oriented to the goal of performance-approach, he would try to demonstrate a better execution than the classmates, relating this goal with external regulation and amotivation (Moreno, González-Cutre, and Chillón, 2009, Standage and Treasure, 2002, Wang et al., 2007), and negatively with anxiety states in students (Smith, Duda, Allen, and Hall, 2002). In the case of the goal of performance-avoidance, this would mean the intention is to avoid being worse than the rest of the classmates. Thus, in general, avoidance goals have correlated with certain negative outcomes in students, such as the maladaptive approach to learning, amotivation, and anxiety states (Conroy, et al., 2006).

As can be seen, the goal that the student presents may have important connotations that can affect academic work. Therefore, the aim of this work is to know how social goals, the perceived locus of causality and the causal

attribution predict the perceived motivational climate in PE students in different countries and cultures

METHOD

Participants

2168 students from the first compulsory secondary education course participated in this longitudinal study, being 423 from Costa Rica, 408 from Mexico and 1337 from Spain with 1052 boys (50.4%), 1037 girls, 49.6%) and 79 who did not reveal their sex. 86.6% of them were from state schools and13.4% from religious schools. The age range was between 11 and 16 years (M = 12.49; SD = 0.81), with the mean age in boys being 12.53 (SD = 0.87) and 12.44 (SD = 0.74) in girls. Fieldwork was carried out between February and June 2011.

Procedure

Schools were asked for permission by means of a letter explaining the research objectives and how it would be carried out, along with a model of the instrument to be used. This was self-administered with mass application, completed anonymously in a school day, with consensus and previous training of assessors. The students were informed of the study's objective, voluntariness, absolute confidentiality of the responses and data management; the assessors explained that there were no correct or incorrect answers and requested maximum sincerity and honesty. Only students who had the informed consent of their parents and guardians participated in the investigation. The research has a favorable report from the Bioethics Commission of the University of Murcia.

Instruments

- *Perceived motivational climate of the Physical Education teacher* by Ruiz-Juan (2014), Spanish version of *Perceptions of Teacher's Emphasis on Goals Questionnaire (PTEGQ)* by Papaioannou et al. (2007), designed to measure students' perceptions of their Physical Education teachers. The original instrument contains 24 items, composed of 4 subscales: mastery, performance-approach, performance-avoidance and social approval. The heading reads: "My teacher of Physical Education ..." Responses are collected on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

- *Social Goals in Physical Education* by Moreno, González-Cutre and Sicilia (2007), Spanish version of the *Social Goal Scale-Physical Education* by Guan, McBride et al. (2006), developed to measure responsibility through five items and the goal of relationship through six items. It has as its headline: "In my Physical Education classes ...". Responses are collected on a Likert scale from 1 (strongly disagree) to 7 (strongly agree).

- *Perceived Locus of Causality* by Moreno et al. (2009), a Spanish version of the *Perceived Locus of Causality Scale* by Goudas, Biddle and Fox (1994), designed to measure the different forms of motivation established by the Theory of Self-Determination in Physical Education: intrinsic motivation, external regulation, introjected regulation, identified regulation and amotivation. It consists of 20 items distributed in the seven mentioned subscales. It has as its headline: "I participate in this kind of Physical Education". It is scored on a Likert scale of 7 points, from 1 (*totally disagree*) to 7 (*totally agree*). This instrument enables a global index of self-determined motivation towards Physical Education classes to be calculated, combining the different subscales: Self-Determination Index (IAD) = (2 x intrinsic motivation + identified regulation) - ((introjected regulation + external regulation) / 2 + 2 x amotivation) (Vallerand and Rousseau, 2001).

- *Causal Attribution* by Navas et al. (2008), designed to determine students' causal attributions in PE classes. It consists of 7 items divided into two scales that measure internal attribution (4 items) and external attribution (3 items). The students should indicate their degree of agreement with the items, with Likert scale responses ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Psychometric properties of instruments

To calculate the psychometric properties, the analysis procedure established by Cartero-Dios and Pérez (2005) was followed. In the item analysis of the four scales, no item was eliminated if it met the established requirements (value ≥ 30 in corrected correlation coefficient item-total, standard deviation>1; all response options were used). The analysis of homogeneity indicated no overlap of items between theoretical dimensions in the two questionnaires. Asymmetry and kurtosis rates are close to zero and <2.0, as recommended by Bollen and Long (1994), indicating univariate normal curve similarity.

The factorial validity of the four instruments was examined using confirmatory factorial analysis (CFA). We used bootstrapping and the maximum likelihood procedure, the estimation procedure of structural equation models that assumes univariate normal distribution and continuous scale, since there is a lack of multivariate normality in most of the data, violating one of the basic rules of CFA.

The adjustment of the model was evaluated with a combination of absolute and relative adjustment indices. The models of the four scales present correct values that allow an acceptable goodness of fit of the original model to be determined (Hoyle, 1995; Hu and Bentler, 1999) as shown by the results obtained (Table 1). The standardized coefficients of relation of the latent variable with each of the items oscillated between 0.62 and 0.97; in all cases, standardized factor loads were >60 and t-value >1.96, which guarantee the convergent validity of each instrument used in this paper (Hair, Black, Babin, and Anderson, 2009). Table 2 presents the Cronbach's alpha coefficients. All

subscales showed satisfactory internal consistency (between.α = 0.70 and α=.95)

Table 1. *Model adjustment indices.*

		χ^2/gl	TLI	IFI	CFI	RMSEA	SRMR
Costa Rica (*n*=360)	Motivational Climate (PTEGQ)	1,98	0,95	0,96	0,97	0,04	0,03
	Social goals in Physical Education (SGS-PE)	2,70	0,99	0,98	0,98	0,06	0,02
	Perceived Locus of Causality (PLOC)	3,08	0,96	0,95	0,96	0,07	0,04
	Causal Attribution	4,82	0,97	0,94	0,97	0,07	0,04
Mexico (*n*=389)	Motivational Climate (PTEGQ)	3,76	0,92	0,91	0,91	0,04	0,05
	Social goals in Physical Education (SGS-PE)	4,07	0,96	0,94	0,95	0,07	0,03
	Perceived Locus of Causality (PLOC)	4,27	0,91	0,90	0,91	0,07	0,04
	Causal Attribution	4,53	0,96	0,94	0,96	0,07	0,04
Spain (*n*=1062)	Motivational Climate (PTEGQ)	2,79	0,95	0,95	0,94	0,04	0,04
	Social goals in Physical Education (SGS-PE)	4,92	0,99	0,98	0,99	0,06	0,01
	Perceived Locus of Causality (PLOC)	4,37	0,96	0,96	0,96	0,06	0,04
	Causal Attribution	4,21	0,96	0,94	0,96	0,07	0,04
	Desirable	*< 5*	*> 0,9*	*> 0,9*	*> 0,9*	*< 0,08*	*< 0,05*

Source: Authors' own work

Data analysis

The analysis of items, homogeneity, correlation between subscales (Pearson's coefficient), internal consistency (Cronbach's alpha), mean differences by country (ANOVA), correlations between all dimensions of the subscales and hierarchical linear regression were performed with SPSS 17.0. The factor structure was examined with confirmatory factor analysis (CFA) with AMOS 21.0.

RESULTS

Descriptive statistics

As shown in Table 2, there are statistically significant differences (p <.001) between the means of each of the variables analyzed by countries. Regarding the motivational climate, we can see how the highest scores occur in the mastery climate (M = 4.05, SD = 0.73, Mexico) and the lowest in performance-avoidance (M = 2.7, SD = 0.89, Spain) in all three countries. Likewise, in the four subscales, Costa Rican students obtained the highest scores (except in mastery), followed by the Mexican and Spanish.

Table 2. *Alpha Coefficient, means and Standard Deviation for motivational climate(PTEGQ), Social Goals in Physical Education (SGS-PE), Perceived Locus of Causality (PLOC) and causal attribution. Differences for countries.*

Questionnaire Subscales	Costa Rica (*n*=360)			Mexico (*n*=389)			Spain (*n*=1062)			F	Sig.
	α	*M*	*SD*	*α*	*M*	*SD*	*α*	*M*	*SD*		
Motivational Climate											
Mastery	0,79	3,88	0,86	0,73	4,05	0,73	0,79	3,62	0,87	42,45	0,000
Performance-approach	0,78	3,24	1,01	0,76	3,16	0,97	0,78	2,76	0,96	46,51	0,000
Performance-avoidance	0,79	3,02	1,05	0,73	2,85	0,96	0,72	2,71	0,89	15,75	0,000
Social Approval	0,85	3,40	1,07	0,85	3,36	1,05	0,85	3,01	1,01	28,75	0,000
Goals in Physical Education											
Responsibility	0,90	5,49	1,26	0,89	5,84	1,17	0,92	5,44	1,32	14,15	0,000
Relationships	0,88	5,42	1,23	0,94	5,82	1,17	0,93	5,48	1,28	12,64	0,000
Perceived Locus of Causality											
Intrinsic Motivation	0,92	5,40	1,48	0,85	5,95	1,10	0,90	5,36	1,36	28,43	0,000
Identified Regulation	0,79	5,33	1,34	0,74	5,77	1,14	0,87	5,04	1,46	40,77	0,000
Introjected Regulation	0,81	5,03	1,44	0,77	5,55	1,23	0,81	4,75	1,40	47,36	0,000
External Regulation	0,89	4,63	1,66	0,79	5,21	1,38	0,79	4,39	1,48	42,06	0,000
Amotivation	0,93	4,11	1,85	0,85	4,39	1,76	0,91	3,37	1,72	57,40	0,000
IAD PLOC	0,95	3,04	5,25	0,93	3,34	4,43	0,93	4,13	5,53	7,25	0,001
Causal Attribution											
Internal	0,86	4,12	0,88	0,77	4,32	0,63	0,79	3,94	0,81	33,73	0,000
External	0,72	3,54	1,06	0,70	3,69	0,93	0,76	3,17	0,96	47,90	0,000

*(p<,05), **(p<,01), ***(p<,001)
Source: Authors' own work

The social goals in Physical Education present high and very similar means in the variable for responsibility in relation to the three countries, the Mexican students (M = 5.84, SD = 1.17, M = 5.82, SD = 1.17, respectively) being slightly higher than the Costa Rican and Spanish students.

In the perceived locus of causality, the Mexican students again had average values above Costa Rican and Spanish students in each of the variables, the differences not being considerable. There was a significant increase in means as the level of self-determination increased, passing in the Mexicans from values of M = 4.39 (SD = 1.76) in amotivation to M = 5.95 (SD = 1, 10) in intrinsic motivation. However, it is the Spanish who present the highest rate of self-determination (M = 4.13, SD = 5.53) with appreciable differences with respect to Costa Ricans (M = 3.04, SD = 5.25).

The internal causal attributions present high averages in all three countries, being slightly higher in Mexican students (M = 4.32, SD = 0.63). The external causal attributes had lower mean values, with the lowest values being among the Spaniards (M = 3.17, SD = 0.96).

Motivational climate relations with social goals, perceived locus of causality and causal attribution

Table 3 shows the results of the calculated correlations, with very similar results in the three countries. In relation to the correlation of the factors of motivational climate in PE, in the three countries, all correlated positively and significantly with all.

On the other hand, mastery, performance-approach, and social approval had a low correlation and were moderately positive with the rest of variables, except for mastery that does not correlate with amotivation. On the other hand, performance-avoidance positively correlates only with responsibility, relationship, introjected regulation, external regulation, amotivation and external attribution.

Table 3. Correlations between the Motivational Climate subscales (PTEGQ) and Social Goals in Physical Education (SGS-PE), Locus Perceived Causality (PLOC) and Causal Attribution. Differences by country.

	Costa Rica (*n*=360)				Mexico (*n*=389)				Spain (*n*=1062)			
	MAS	*P-A*	*P-AV*	*S-A*	*MAS*	*P-A*	*P-AV*	*S-A*	*MAS*	*P-A*	*P-AV*	*S-A*
Motivational Climate												
Mastery	1	0,34**	0,33**	0,43**	1	0,31**	0,19**	0,35**	1	0,30**	0,25**	0,50**
Performance-approach	0,34**	1	0,65**	0,71**	0,31**	1	0,59**	0,65**	0,30**	1	0,65**	0,65**
Performance-avoidance	0,33**	0,65**	1	0,64**	0,19**	0,59**	1	0,55**	0,25**	0,65**	1	0,54**
Social Approval	0,43**	0,71**	0,64**	1	0,35**	0,65**	0,55**	1	0,50**	0,65**	0,54**	1
Goals in Physical Education												
Responsibility	0,42**	0,16**	0,19**	0,22**	0,36**	0,15**	0,12*	0,17**	0,42**	0,06*	0,06*	0,22**
Relationships	0,40**	0,18**	0,25**	0,27**	0,35**	0,17**	0,13*	0,27**	0,34**	0,07*	0,06*	0,21**
Perceived Locus of Causality												
Intrinsic Motivation	0,44**	0,20**	0,06	0,27**	0,34**	0,17**	0,04	0,19**	0,41**	0,08**	-0,02	0,22**
Identified Regulation	0,50**	0,18**	0,05	0,28**	0,36**	0,12*	0,03	0,20**	0,42**	0,09**	0,01	0,23**
Introjected Regulation	0,39**	0,31**	0,28**	0,40**	0,26**	0,24**	0,17**	0,28**	0,34**	0,29**	0,22**	0,37**
External Regulation	0,21**	0,33**	0,39**	0,37**	0,19**	0,33**	0,22**	0,28**	0,19**	0,33**	0,27**	0,31**
Amotivation	0,05	0,39**	0,42**	0,35**	0,04	0,26**	0,26**	0,16**	-0,03	0,36**	0,37**	0,22**
Causal Attribution												
Internal	0,35**	0,24**	0,08	0,24**	0,30**	0,29**	0,07	0,23**	0,31**	0,15**	0,05	0,24**
External	0,18**	0,33**	0,35**	0,31**	0,10*	0,23**	0,20**	0,13*	0,13**	0,24**	0,15**	0,22**

*(p<0,05), **(p<0,01)
MAS=Mastery, P-A=Performance-Approach, P-AV=Performance Avoidance, S-A= Social Approval

Source: Authors' own work

Multivariate regression analysis

Then, a linear multivariate regression analysis was performed, taking the average motivational climate score (mastery, performance-approach, performance-avoidance and social approval) as the dependent variables, and each of the social goal variables as a predictor variable, Perceived Locus of Causality and Causal Attribution. Finally, as a selection variable, we considered the country.

As a result of this analysis, we obtained solid models that explained a large part of the variance in each country, ranging from 33% to 55%. From this analysis we extracted the value of R^2 to explain the variance, that of *Beta* to explain the prediction between variables and that of *F* to see if there is a relationship between the selected variables and their significance (Table 4).

The models show that, in all three countries, mastery can be significantly predicted by a high score on responsibility, intrinsic motivation and internal attributions. In addition, in Costa Rica, it also scored high on identified regulation (55% of variance in Costa Rica, 45% in Mexico and 49% in Spain).

On the other hand, in Costa Rica and Mexico, performance-approach can be predicted significantly by a high score in external regulation, amotivation and external attributions (48% of variance in Costa Rica and 42% in Mexico). In Spain, there was in addition a high score in introjected regulation (47% of variance).

In all three countries, performance-avoidance can be significantly predicted by a high score in introjected regulation, amotivation and external attributions, and by low score in intrinsic motivation (51% of variance in Costa Rica, 33% in Mexico and 43% in Spain).

Finally, the social approval models in the three countries are almost identical and can be predicted significantly by a high score in introjected regulation (except in Mexico), amotivation and external attribution (49% of variance in Costa Rica, 37% in Mexico and 44% in Spain).

Table 4. Multivariate Linear Regressive Analysis: models that predict significantly the Motivational Climate (PTEGQ) as a function of Social Goals in Physical Education (SGS-PE), Perceived Locus Causation (PLOC) and Causal Attribution, by country.

	Costa Rica (*n*=360)				Mexico (*n*=389)				SpainEspaña (*n*=1062)			
	MAS	*P-A*	*P-AV*	*S-A*	*MAS*	*P-A*	*P-AV*	*S-A*	*MAS*	*P-A*	*P-AV*	*S-A*
	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$	$Beta^{Sign}$
Social goals in Physical Education												
Responsibility	0,13*	-0,01	-0,00	-0,07	0,14*	0,06	0,04	-0,07	0,21***	-0,01	0,06	0,05
Relationship	0,08	-0,03	0,10	0,06	0,12	0,01	0,03	0,04	-0,00	-0,06	-0,03	-0,00
Perceived Locus of Causality												
Intrinsic Motivation	0,13*	0,09	-0,09*	0,04	0,15*	0,03	-0,14*	-0,04	0,13**	-0,05	-0,16***	-0,02
Identified Regulation	0,28***	-0,03	0,02	0,08	0,12	-0,13	-0,02	0,03	0,05	0,01	0,00	0,02
Introjected Regulation	0,03	0,05	0,13*	0,15*	-0,06	0,00	0,12*	0,08	0,05	0,23***	0,22***	0,24***
External Regulation	-0,09	0,12*	0,08	0,07	-0,03	0,19***	0,05	0,10	0,00	0,08*	0,04	0,06
Amotivation	0,10	0,28***	0,27***	0,15*	0,01	0,12*	0,19***	0,23**	-0,03	0,23***	0,28***	0,11***
Causal Attribution												
Internal	0,12*	0,10	-0,00	0,02	0,19***	0,07	0,01	0,00	0,06*	0,01	-0,04	0,04
External	0,03	0,17**	0,18***	0,16**	-0,01	0,10*	0,12**	0,11*	0,05	0,15***	0,09**	0,14***
	R^2=0,55	R^2=0,48	R^2=0,51	R^2=0,49	R^2=0,45	R^2=0,42	R^2=0,33	R^2=0,37	R^2=0,49	R^2=0,47	R^2=0,43	R^2=0,44
	F=16,21	F=10,84	*F*=12,87	*F*=11,49	*F*=10,50	*F*=8,77	*F*=5,17	*F*=6,49	*F*=36,32	*F*=31,90	*F*=26,10	*F*=27,13

*(p<0,05), **(p<0,01)
MAS=Mastery, P-A=Performance-Approach, P-AV=Performance Avoidance, S-A= Social Approval
Source: Authors' own work

DISCUSSION AND CONCLUSIONS

The objective of this work was to analyze how social goals, perceived locus of causality and causal attribution can predict the motivational climate perceived by PE students in Costa Rica, Spain and Mexico. Therefore, the importance of this work lies in knowing among other things, which predictors are established as a general tendency in the three countries towards the motivational climate in PE once the importance of these goals in the academic field is recognized. These comparisons between countries are of great interest, as the data published by other studies (Franco, Coterón, Gómez, Brito, and Martínez, 2017; Vílchez and Ruíz-Juan, 2016) show the great contribution they make to the field of knowledge.

The results of this work show a greater mastery climate, being greater in Mexico than in other countries. In the works of Baena-Extremera and Granero-Gallegos (2015), Cuevas, García and Contreras (2013), Méndez, Fernández and Cecchini (2012), Méndez, Fernández, Cecchini and González (2013) and Vílchez and Ruíz-Juan 2016), the results obtained were in the same line, where a mastery goal predominated in the students. These data, therefore, show a generalized tendency in PE students, which is recognized not only in Spain, but also in other countries as demonstrated. Therefore, the students in PE seek in

the academic environment with this subject to work hard, to strive, to learn and to be more satisfied with themselves, possibly, unlike other subjects. This particularity is reflected inversely in the low values of performance and avoidance in the three countries, being the lowest in Spain, a symptom typical of the idiosyncrasy of the PE area, where no pupil likes to lose or be the worst.

The social goals in PE present high and very similar averages in the variables of responsibility and relationship in the three countries. This result presents another general tendency in the students, where other authors have already affirmed that both goals were related to positive consequences in this subject, such as persistence and enjoyment (Allen 2003, Guan, Xiang, McBride, and Bruene, 2006), although they may vary according to the age of the students (Granero-Gallegos, Baena-Extremera, Bracho-Amador, and Pérez-Quero, 2016). It should be remembered that, if anything characterizes this subject, it is the enjoyment and motivation of students in their practices (Baena-Extremera and Granero-Gallegos, 2015, Gutiérrez, 2014).

In the locus perceived causality, Mexican students again present average values above Costa Rican and Spanish students, appreciating a significant increase in the means as the level of self-determination increases. It should be remembered that in support of this result, mastery (the most self-determined goal) was the goal with the highest value, and Mexico was the country above the rest. This data, therefore, corroborates the contributions of other investigations (Aspano, Lobato, Leyton, and Batista, Jiménez, 2016, Baena-Extremera, Granero-Gallegos, Sánchez-Fuentes, and Martínez-Molina, Marín, Ruiz, and Cervelló, 2013), where the high values achieved in motivation and the importance given by the students in the evaluation of this subject are demonstrated. Something that, without a doubt, PE teachers should take advantage of, especially once the very interesting repercussions that this subject has on the school in general are known (Baena-Extremera and Granero-Gallegos, 2015).

The internal causal attributions present high averages in the three countries, being slightly higher in the Mexican students, while the external ones have lower averages, the lowest being those of the Spanish students. These data corroborate previous contributions offered by Navas et al. (2008) and Mascarenhas et al. (2005), where they show that internal attributions present higher values than the external ones, an indication that in PE the student looks to show effort, ability and capacity. These results are in agreement with those shown previously in this work. In this way, another general tendency is discovered in PE students, corroborating the contributions of existing works and, what is more interesting, being framed equally in the countries analyzed.

In prediction analysis, it is observed how in the three countries, mastery can be predicted by responsibility, intrinsic motivation and internal attributions. Moreover, in Costa Rica, a high score also results from identified regulation. These data are consistent with the contributions of Guan, Xiang et al. (2006), where they associated the goal of responsibility to others such as persistence or

effort, behavior typical of goals such as mastery. Likewise, following Cecchini et al. (2011) and Cervelló, Moreno, Martínez, Freís and Moya (2011), mastery involves hard work, effort and self-improvement, and these behaviors are characteristic of intrinsically motivated students with an internal attribution. Thus, in order to bring students closer to this goal, teachers should seek to make PE interesting, attractive, appropriate to the students' tastes and particularities, and even enable the student to intervene in the construction of the rules of the game and class.

In the case of Costa Rica and Mexico, the performance-approach can be predicted significantly by a high score in external regulation, amotivation and external attributions and additionally in Spain by a high score in introjected regulation. These data follow a generalized pattern and according to the theories described in this work. In addition, they agree with the contributions of Jang and Liu (2012), who state that the approach to this goal is to see that success and competence are based on comparisons, using the other classmates as a reference point to be overcome. This behavior means that the student seeks motivation outside himself, becoming externally motivated and even amotivated, which is perfectly associated with the external locus. In fact, Moreno and Martínez (2006) already stated that external regulation is characterized by having an external locus of control.

Another generalized tendency among the population of the three countries studied is that performance-avoidance can be predicted by introjected regulation, amotivation, external attributions, and a low score in intrinsic motivation. Equally, this contribution is totally in tune with the perfect context of the theories cited in this work, and the investigations that have been referenced. For example, Jang and Liu (2012) record that performance-avoidance students are not pre-occupied in class by the skills they fail to learn, but are more concerned about doing better than the rest and avoid feeling inferior to others. This conducts is totally in accordance with introjected regulation, being also in line with the other predictor variables described, such as low intrinsic motivation. These contributions should be taken into account by PE teachers in the methodology they develop.

Finally, it should be noted that the social approval models in the three countries are almost identical and can be significantly predicted by a high score in introjected (except in Mexico) regulation, amotivation and external attributions. These data agree with the contributions of Ruiz-Juan (2014) who states that one of the characteristics of this goal is achievement based on criteria determined by others. In this line, Wentzel (1989) sets out the relation of this goal with the desire to respect the role established in the school, typical of the introjected regulation where some form of approval and social recognition of the group is sought. Equally, this agrees with the variables that predict it, since motivation and external attributions are characteristic of subjects who seek to show their superiority, obtaining with it a social recognition.

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