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A multi-theoretical approach of the students' motivational profiles in physical education: achievement and social goals

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Abstract

Background: The objective was to analyze the joint profiles of social goals (responsibility, relation and friendship) and 2 × 2 achievement goals, and the pattern of their relationship with the motivation types of the self-determination continuum in Physical Education settings. **Method:** The sample consisted of 516 Secondary Education students (267 men, 249 women) aged between 12 and 17 years old (M = 14.48, SD = 1.59). Cluster analysis and a MANOVA 2 (gender) × 4 (goal profiles) were performed. **Results:** Cluster analysis showed four motivational profiles: "high social and mastery-approach goals", "intermediate social goals", "high social and achievement goals", and "low social and intermediate achievement goals". The "high social and mastery-approach goals" cluster was shown to be the most self-determined, followed by the "high social and achievement goals" cluster. **Conclusion:** This research emphasizes the value of social goals and helps to understand the motivational profiles of physical education students from a more holistic framework. It suggests that responsibility, friendship, and relation goals should be prioritized along with mastery-approach goals (but not performance goals) in order to increase students' self-determined motivation in Physical Education.

Keywords: motivation, clusters, profile.

Resumen

Un enfoque multiteórico de los perfiles motivacionales de los estudiantes en educación física: metas de logro y sociales. **Antecedentes**: el objetivo fue analizar los perfiles conjuntos de metas sociales (responsabilidad, relación y amistad) y de metas de logro 2 × 2, y su patrón de relación con los tipos de motivación del continuo de autodeterminación en Educación Física. **Método**: la muestra estuvo formada por 516 estudiantes de Educación Secundaria (267 varones, 249 mujeres) con edades comprendidas entre 12 y 17 años (M = 14.48, SD = 1.59). Se realizaron un análisis de cluster y una MANOVA 2 (género) × 4 (perfiles de meta). **Resultados**: el análisis de clúster mostró cuatro perfiles motivacionales: "metas sociales y de aproximación-maestría altas", "metas sociales intermedias", "metas sociales y de logro altas", y "metas sociales bajas y de logro intermedias". El clúster de "metas sociales y de aproximación-maestría altas" se mostró como el más autodeterminado, seguido del clúster de "metas sociales y de logro altas". **Conclusiones**: esta investigación enfatiza el valor de las metas sociales y contribuye a comprender los perfiles motivacionales de los estudiantes de educación física desde una perspectiva más holística. Sugiere que las metas de responsabilidad, amistad y relación deben priorizarse junto con las metas de aproximación-maestría (no así las de rendimiento) al objeto de aumentar la motivación autodeterminada de los estudiantes en el contexto de la Educación Física.

Palabras clave: motivación, clusters, perfil.

Two theoretical frameworks are predominant to understand how people define competence and success: the achievement goal theory (AGT; Nicholls, 1984) and the social goals theory (SGT, Maehr & Nicholls, 1980; Urdan & Maehr, 1995; Wentzel, 2002). Although both frameworks were developed separately, researchers have emphasized the need to examine the achievement and social domains together to better understand motivation, especially in adolescents, since these constructs interact in the direction of behaviors both in daily life and in the school context (Elliot, Gable, & Mapes, 2006). In addition, self-determination theory (SDT; Deci & Ryan, 1985, 2002) has been widely used to analyze motivational processes in the continuum of self-determination. The present study explored the achievement and social goals profiles from a multi-theoretical framework and their relationship with students' motivational regulations in the context of physical education (PE).

From the AGT perspective, the main energizer for behaviour is the desire to demonstrate competence. Initially, how a person defined competence was identified by dichotomous constructs. The *mastery* or *task* goals focused on task-based or *intra*personal (self-referenced) competence standards, while *performance* or *ego* goals referred to normative or *inter*personal competence standards, that is, with reference to others (Nicholls, 1984). Elliot and McGregor (2001) proposed the 2 × 2 achievement goal framework. In addition to the *definition* dimension (mastery and performance), the *valence* was also considered to define perceived competence. Thus, the approach goals focused on the acquisition

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of positive possibilities, while the avoidance goals focused on avoiding negative possibilities. As a result of combining both dimensions, the 2 × 2 framework established four possible types of achievement goals: *mastery-approach* (positive and intrapersonal), *performance-approach* (positive and normative), *mastery-avoidance* (negative and intrapersonal) and *performance-avoidance* (negative and normative).

Research on achievement goals effects has shown an association between mastery-approach goals and variables of positive valence, such as the high need for achievement, intrinsic motivation or interest in one's task. Performance-approach goals have been associated with high scores on positive valence (competence and actual performance) and negative valence variables (anxiety, worry, negative affect or tense relations) (Elliot & McGregor, 2001; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Van Yperen, 2006). Performance-avoidance goals are associated with adverse consequences, such as negative affect and anxiety, as well as low involvement and interest in the task. Finally, mastery-avoidance goals adopt a more negative consequence pattern than mastery-approach goals, but more positive than performance-avoidance goals (Elliot & McGregor, 2001).

However, it is very likely that students pursue achievement goals in parallel with social goals, even that they are not able to pursue some goals in the absence of others or that there is an interaction between them (Elliot, Gable, & Mapes, 2006; Méndez-Giménez, Fernández-Río, & Cecchini, 2012). Originally, Maehr, and Nicholls (1980) included a goal orientation of social approval, in addition to goal orientations of task and ego. More recently, Urdan and Maehr (1995) claimed the resurrection of social goal orientations and emphasized their importance in describing and explaining achievement behavior. In the school context, there are several types of social relationships (Stuntz & Weiss, 2003). For example, students can relate on a more intimate level with a close friend, or more generally with their classmates. Friendship describes a close mutual dyadic relationship between two individuals, while peer acceptance describes a group-level construct of acceptance or sympathy by the peer group (Stuntz & Weiss, 2003). In the present study, both social goals have been contemplated: relationships with the closest friends (friendship goals) and relationships with other classmates (relation goals). Likewise, other goals of the social domain such as social responsibility have been established (Urdan & Maehr, 1995). Social responsibility goals reflect a student's desire to follow social rules and expectations in the classroom (Guan, McBride, & Xiang, 2006; Wentzel, 1991). Previous research has shown positive associations between social responsibility goals and involvement in class (Garn, McCaughtry, Shen, Martin, & Fahlman, 2011), positive academic results (Wentzel, 1991), psychological well-being (Anderman, 2003), and students effort/persistence (Guan, Xiang, McBride, & Bruene, 2006), as well as an inverse relationship with students' disruptive behaviors (Garn et al., 2011).

On the other hand, the SDT proposes that motivation occurs on a continuum that ranges from intrinsic motivation to different forms of extrinsic motivation (for example, identified, introjected and external regulation) until amotivation (absence of motivation). When behavior is self-determined or regulated by the highest forms of motivation of the continuum (for example, intrinsic motivation, integrated and identified regulation), adaptive responses are produced, as greater commitment and enjoyment. On the contrary, when the behavior is less self-determined or regulated by the forms of motivation lower in the continuum (that is, introjected and external regulation) or amotivation, maladaptive consequences emerge (Deci & Ryan, 1985).

Since individuals can adopt multiple goals simultaneously, the study of multidimensional profiles can provide a more complete picture of the motivational patterns than the separately analysis of the relationships between each goal and the relevant outcome variables in achievement contexts (Fernández-Río, Méndez-Giménez, Cecchini, & González, 2012; Méndez-Giménez, Fernández-Río, Cecchini, & González, 2013, Stunt & Weiss, 2009; Wang, Biddle, & Elliot, 2007).

In the sports domain, the study by Stuntz and Weiss (2009) found four clusters by jointly examining two orientations of goal achievement (task and ego) and three orientations of social goal (close friendship, group acceptance and coach praise). The *versatile* cluster, which defined success with relatively high scores in the five-goal orientations, and the *more oriented towards friendship and less towards ego* cluster, were the most adaptive (greater perceived competence, fun and intrinsic motivation). The *ego-oriented* cluster was less adaptive, and the *low scores in the five-goal orientations* cluster was the least adaptive.

In the context of PE, two studies have analyzed motivational profiles from a multidimensional framework, including 2 × 2 achievement goals and friendship goals (Garn & Sun, 2009; Méndez-Giménez et al., 2015). At the same time, several studies have shown interactions between the 2 × 2 achievement goals and the social responsibility and relationship goals, as well as with motivational regulations (Cecchini et al., 2008; Cecchini, González, Méndez-Giménez, & Fernández Río, 2011). Both types of social goals were important predictors of the more self-determined regulations (intrinsic motivation, identified regulation, and introjected regulation), while only the responsibility goals were negative predictors of amotivation. Recently, Levontin and Bardi (2018) reported on four studies that show how amity goal orientation increases the positive effect of mastery-approach goal by promoting the mutual success of oneself along with others. However, this interaction did not emerge with the approach-performance goals. These studies showed the same interaction effect in both academic and work achievement contexts. Levontin and Bardi (2018) pointed out that people who have a pro-social motivation are likely to feel that promoting their success at the expense of others conflicts with their basic motivations. Thus, interactions between achievement and social goals can also occur in PE. For example, a mastery-oriented student with low performance may be motivated to participate in PE classes if their social relationship goals are satisfied.

Therefore, it is necessary to introduce a wide variety of social goals in this framework of multidimensional profiles in order to better represent the complex motivational scenario of students. The objective of the present study was to analyze the joint profiles of 2 × 2 achievement goals, friendship goals (approximation-avoidance) and social goals (responsibility and relationship) and their relationship with motivational regulations in the context of PE. This research aims to explore the interactions between achievement and social goals from the perspective of multiple goals, and determine which cluster is more adaptive in motivational terms in light of the SDT.

Based on this background, the following hypotheses were formulated: a) a cluster with high scores in all social goals and

mastery-approach goals will emerge, and will be shown as the most adaptive group (due to the influence of the responsibility goals); b) a cluster with all the high goals will be less adaptive than the previous one (due to the influence of the performance goals), and c) one or two more clusters with all the low goals or with high-performance goals could also emerge being the less adaptive group.

Method

Participants

The sample consisted of 516 Secondary Education students (267 men, 249 women) with ages between 12 and 17 years (M = 14.48, SD = 1.59). The participants come from four secondary schools selected for convenience (Table 1).

Instruments

2 × 2 achievement goals. The Achievement Goal Questionnaire-Physical Education (AGQ-PE, Guan, Xiang, McBride, & Bruene, 2006) validated in Spanish by Moreno, González-Cutre, and Sicilia (2008) was used. This scale consists of 12 items that reflect the four identified achievement goals (three items for each goal): *mastery-approach* (e.g., "In my PE classes … I want to learn as much as possible"), *performance-approach* (e.g., "It is important for me to do better than other students"), *performance-avoidance* (e.g., "My goal is to avoid performing poorly") and *mastery-avoidance* (e.g., "I'm often concerned that I may not learn all that there is to learn").

Friendship goals. The Questionnaire of Friendship Goals in Physical Education of Méndez-Giménez, Fernández-Río, and Cecchini (2014) was used. It is based on the Friendship Goals Questionnaire - Physical Education (FGQ-PE) by Garn and Sun (2009), which in turn comes from the original questionnaire from Elliot et al. (2006) developed for the academic field. It consists of a total of 8 items grouped in two dimensions (4 items each): friendship-approach goals (e.g., "In my Physical Education classes I try to deepen my relationships with my friends") and friendship-avoidance goals, (e.g., " In my Physical Education classes I try to avoid disagreements and conflicts with my friends").

Relationship and responsibility goals. The 11-item Social Goal Scale by Patrick, Hicks, and Ryan (1997) adapted to the context of PE by Guan, McBride et al. (2006; Social Goal Scale-PE), and validated into Spanish by Moreno, González-Cutre, and Sicilia (2007) was used. This scale is composed of two dimensions: relationship goals (6 items, e.g., "I'd like to get along with most other students") and responsibility goals (5 items, e.g., "I try to do what the teacher asks me to do").

Table 1
Participants' distribution based on grade and sex

		Sex	
		Men	**Women**
Grade	1st CSE	55	47
	2nd CSE	61	56
	3rd CSE	61	57
	4th CSE	60	47
	1º Baccalaureate	30	42

Compulsory Secondary Education = CSE

Motivational regulations. To assess PE students' types of motivation, the Perceived Locus of Causality (PLOC) by Goudas, Biddle, and Fox (1994) was used. This scale was translated into Spanish and validated for the context of the PE by Moreno, González-Cutre, and Chillón (2009). The questionnaire is composed of five factors (four items for each factor): intrinsic motivation (e.g., "because PE is fun"), regulation identified (e.g., "because it is important for me to do well in PE"), introjected regulation (e.g., "because I feel bad about myself if I did not"), external regulation (e.g., "because I will have problems if I do not") and amotivation (e.g., " but I really don't know why"). The answers were headed by the statement "I participate in PE class ...".

Participants responded to a 5-point scale ranging from 1 = 'strongly disagree' to 5 = 'strongly agree'. In this study, Cronbach's alpha coefficients for all subscales were higher than .70, showing an acceptable internal consistency (Table 2).

Procedure

First, we contacted the physical education teachers and the high school principals to request their permission. The informed consent of the parents and students was then obtained. All students who were asked to participate voluntarily agreed so there is no selection bias. The participants were informed the questionnaire did not represent an evaluation and there were no correct or incorrect answers. As for the data, 14 answers were not complete, but they were not eliminated because none exceeded 8% of missing data. The missing data were imputed at random with values derived from a multiple regression in which two scores of the items that measure the same construct were used as predictor variables.

Data analysis

A cluster analysis was carried out to group achievement, friendship, relation and responsibility goals, seeking maximum homogeneity in each group and the greatest differences among them. Following the suggestions of Hair, Anderson, Tathan, & Black (1999), two conglomerate analysis were carried out. The sample was randomly divided into two groups (A, n = 262, B, n = 263). In the first subgroup, a hierarchical conglomerate analysis was performed, and the identified clusters were subsequently confirmed with a k-means cluster analysis in the second subgroup. Before performing the analysis, all the variables were standardized using Z values (the Z-score has a mean of 0 and a standard deviation of 1). The Ward method was used to minimize differences in the cluster and to avoid the problems of long chains of observations. Since we seek a solution where clusters are different from each other and, at the same time, the elements are close within each cluster, the best solution would be one where the corresponding lines will take time before coming to a close. A final cluster analysis was carried out with the whole sample using the k-means method. Next, it was examined whether there were differences between the identified profiles according to gender and the types of self-determined motivation. SPSS v.24.0 was used for all the analysis.

Results

Conglomerate analysis

To examine students' profiles in the eight-goal orientations, social goals (responsibility and relationship), friendship goals (approach and avoidance) and achievement goals (2×2) were used as predictor variables. The analysis of hierarchical conglomerates in group A showed that until the solution of four conglomerates, those that were forming had small distances, which indicated that from here different clusters were merging. Consequently, it was determined that the solution of four conglomerates was the most appropriate. This decision was clearly supported by the dendrogram. In the analysis of *k*-means conglomerates with the second subgroup, the four clusters were identified. The standardized scores, means and standard deviations for each variable in the four clusters were very similar. From here, a *k*-means analysis was performed for the entire group (Table 2).

Figure 1 shows the four identified profiles. Cluster 1 ("high social and mastery-approach goals") was comprised of 146 students and was characterized by high scores on social responsibility and relationship goals, friendship goals, and mastery-approach goals, intermediate scores on avoidance-mastery goals, and low scores on performance goals. Cluster 2 ("intermediate social goals"), was made up of 85 students who showed intermediate scores on the social relationship and friendship goals, low scores on social responsibility, avoidance-mastery and performance goals, and very low scores on mastery-approach goals. Cluster 3 ("high social and achievement goals") showed a high profile in all goals and was made up of 184 students. The last cluster ("low social and intermediate achievement goals ") was formed by 101 students who presented intermediate levels of achievement goals, and low or very low in the rest of the goals. No significant differences were observed according to gender between the groups ($\chi^2 = .491$, $p = .921$), but they did depended on age, specifically, between groups 1 and 2 ($t = -3.15$, $p < .005$), 1 and 4 ($t = -3.25$, $p < .001$), 2 and 3 ($t = 3.57$, $p < .001$), and 2 and 4 ($t = -3.74$, $p < .001$). Groups 1 and 3 showed lower ages and significantly different than groups 2 and 4.

Multivariate analysis of variance

To determine if the gender and the identified goal profiles affected the self-determined motivation in PE classes, a MANOVA 2 (gender) × 4 (goal profiles) was performed. Previously, the idea of homogeneity of covariance was examined using the Box *M* test (485. 88, $F = 4.46$, $p < .001$) and, consequently, the Pillai's Trace was used instead of the Wilks lambda to evaluate the multivariate significance of main effects and interactions. The MANOVA showed a significant effect for the gender, Pillai's Trace = .047, $F_{(2, 455)} = 4.98$, $p < .001$, $\eta^2 = .05$, and for the goal profiles, Pillai's Trace = .293, $F_{(15, 1518)} = 10.94$, $p < .001$, $\eta^2 = .10$, but not for the interaction between both, Pillai's Trace = .028, $F_{(15, 1518)} = .958$, $p = .500$, $\eta^2 = .01$. Subsequent univariate ANOVAs revealed that male students showed significantly higher values in intrinsic motivation [$F_{(1, 508)} = 21.64$, $p < .001$, $\eta^2 = .04$]. Significant differences were also observed in the goal profiles related to all types of motivation: intrinsic motivation [$F_{(3, 508)} = 32.93$, $p < .001$, $\eta^2 = .16$], identified regulation [$F_{(3, 508)} = 24.37$, $p < .001$, $\eta^2 = .13$], introjected regulation [$F_{(3, 508)} = 27.11$ $p < .001$, $\eta^2 = .14$], extrinsic regulation [$F_{(3, 508)} = 11.95$, $p < .001$, $\eta^2 = .07$], and amotivation [$F_{(3, 508)} = 4.83$, $p < .01$, $\eta^2 = .03$]. As the Scheffé's *post hoc* comparisons showed, the cluster 1 was the one that presented a more self-determined motivational profile. In cluster 3, no significant differences were observed in intrinsic motivation and identified regulation with respect to cluster 1, but there were higher levels than this group in introjected regulation, external regulation and amotivation, being, therefore, less self-determined (Table 2).

Table 2
Means, z-scores, standard deviations, and characteristics of the identified clusters (total sample)

				Cluster 1 (n =146)		Cluster 2 (n = 85)		Cluster 3 (n = 184)		Cluster 4 (n =101)	
	Alpha	**M**	**SD**	**M(z)**	**SD**	**M(z)**	**SD**	**M(z)**	**SD**	**M(z)**	**SD**
1. Responsibility	.72	4.34	.52	4.59(.48)	.35	3.87(-.91)	.57	4.53(.36)	.38	4.03(-.59)	.46
2. Relationship	.74	4.47	.46	4.70(.50)	.29	4.43(-.09)	.33	4.62(.32)	.31	3.92(-1.20)	.53
3. Friendship-appoach	.85	4.07	.71	4.41(.48)	.57	3.83-.34)	.60	4.33(.37)	.51	3.30(-1.09)	.61
4. Friendship-avoidance	.81	4.38	.59	4.67(.49)	.36	4.23(-.26)	.49	4.64(.43)	.36	3.64(-1.27)	.57
5. Mastery-approach	.76	4.33	.63	4.64(.49)	.38	3.40(-1.47)	.54	4.63(.47)	.39	4.14(-.31)	.49
6. Mastery-avoidance	.71	3.45	1.00	3.16(-.29)	1.05	2.69(-.75)	.87	4.17(.73)	.65	3.17(-.27)	.71
7. Performance-approach	.79	3.20	1.01	2.59(-.60)	.90	2.62(-.57)	.86	3.91(.71)	.71	3.26(.06)	.83
8. Performance-avoidance	.70	3.06	.98	2.50(-.57)	.77	2.42(-.66)	.80	3.90(.85)	.65	2.91(-.15)	.81
9. Intrinsic motivation	.79	3.96	.81	4.18(.27)^{a}	.74	3.39(-.69)^{b}	.88	4.19(.29)^{a}	.69	3.65(-.37)^{b}	.72
10. Identified regulation	.77	4.08	.90	4.26(.20)^{a}	1.11	3.51(-.63)^{b}	.94	4.34(.29)^{a}	.59	3.80(-.31)^{b}	.70
11. Introjected regulation	.73	3.34	.84	3.29(-.05)^{a}	.89	2.96(-.45)^{bd}	.72	3.73(.47)^{c}	.72	3.04(-.36)^{ad}	.73
12. External regulation	.71	3.02	1.06	2.78(-.23)^{a}	.98	3.09(.06)^{ab}	1.31	3.36(.32)^{b}	.95	2.74(-.26)^{a}	.95
13. Amotivation	.78	1.20	.95	1.76(-.25)^{a}	.83	2.20(.22)^{b}	1.05	2.05(.06)^{b}	.94	2.06(.07)^{b}	.96
Characteristics of clusters											
Men n (%)				75(51.4%)		42(49.4%)		95(51.6%)		55(54.5%)	
Women n (%)				71(48.6%)		43(50.6%)		89(48.4%)		46(45.5%)	
Age				14.10		14.79		14.05		14.76	

Note: In each row, means with different superscript differ at least to the level of $p < .05$

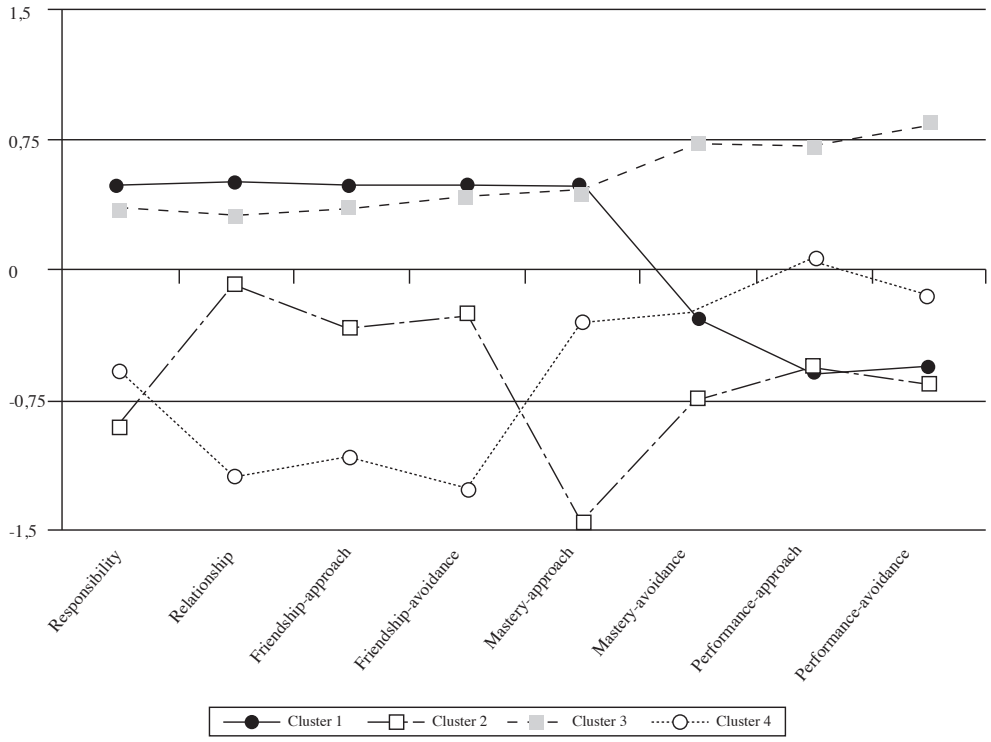

Figure 1. Z-scores of the identified profiles with the analysis of k-means clusters

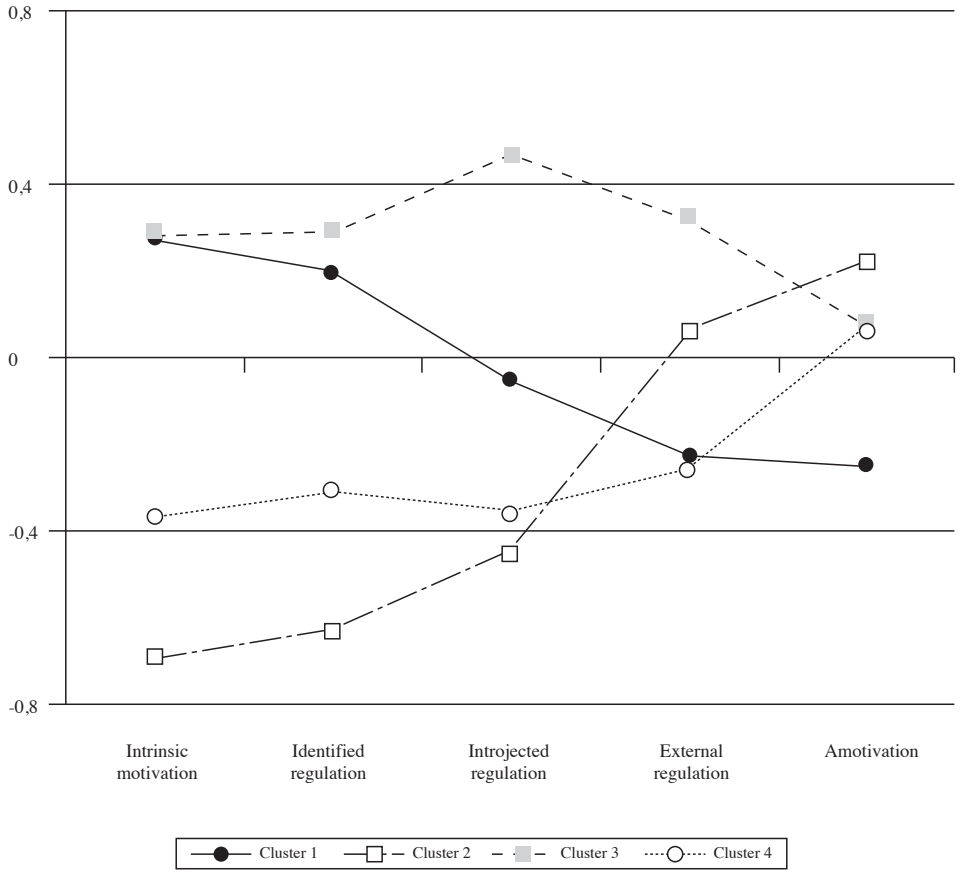

Figure 2. Z-scores in the types of motivation in each of the identified clusters

Clusters 2 and 4 showed the least self-determined motivational profiles, with no statistically significant differences between them in any motivational dimension (Figure 2).

Discussion

The main objective of this research was to jointly analyze the profiles of 2 × 2 achievement goals, friendship goals (approximation-avoidance) and social responsibility and relation goals, as well as their relationship with the motivational regulations of the self-determination continuum in the context of PE. Four clusters emerged. Cluster 1 "high social and mastery-approach goals" was shown as the most self-determined. Cluster 3 "high social and achievement goals" also scored high in all regulations of the continuum, but included introjected regulation, external regulation, and amotivation. Clusters 2 ("intermediate social goals" and 4 ("low social goals and intermediate achievement goals") were the least self-determined.

The results of the present study confirmed the hypotheses formulated and emphasized the need to contemplate a broad spectrum of social goal orientations in conjunction with achievement goals to better understand motivational profiles (Stuntz & Weiss, 2003; 2009). Méndez-Giménez et al. (2015) found two adaptive profiles, the "high goals", with high scores on all achievement and friendship goals, and the "high social and moderate to low achievement goals", with high friendship goals, intermediate mastery-approach goals and low in the rest. These two profiles showed positive relationships with both fun and perceived effort. However, the present study, which incorporates responsibility and relationship goals into the scrutiny, shed light on which profile may be more adaptive. Although the "high social and achievement goals" cluster was characterized by high levels of intrinsic motivation and identified regulation, it also showed high levels of extrinsic motivation and amotivation. The high-performance goals (approximation and avoidance) of cluster 3 made the difference with the "high social and mastery-approach goals" profile (with low-performance goals). It was this profile that was characterized by high levels of autonomous motivation (without significant differences to those of the previous group) but, above all, by lower scores in statistical terms than the previous cluster, in controlled motivation and amotivation.

In this sense, the study by Fernández-Río, Méndez-Giménez, Cecchini, and González (2012) identified a profile of "moderately high social and mastery goals" that was the most adaptive in terms of students' fair play, characterized by low levels of *importance to victory* and *hard play*, and high in *fun*. On the other hand, the "low social goals and high-performance goals" profile produced the lowest levels of fair play (high levels of *importance to victory* and *hard play*, and low levels of *fun*). The results of these studies emphasize the positive motivational effects of task-approach goals in combination with social goals as well as in other relevant outcome variables.

Significant differences between clusters according to age emerged. Clusters 1 and 3 (with higher scores on intrinsic motivation and identified regulation) were characterized by lower ages and significantly different than groups 2 and 4. These data are convergent with the findings of previous research. Barkoukis, Taylor, Chanal, and Ntoumanis (2014) reported longitudinal results on the changes related to motivational regulations for three years in PE classes. The authors observed a decrease in intrinsic motivation and identified regulation, and an increase in external regulation and amotivation mean scores. Ullrich-French and Cox (2014) also observed a drop in intrinsic motivation and identified regulation and an increase in extrinsic regulation values. One possible explanation for the motivational change is that the motivational climate established in the PE sessions became increasingly competitive and success was built on social comparisons and normative standards. Research in PE (Barkoukis et al., 2010; Ntoumanis et al., 2009) has documented an increase in the perception of ego-involving climate (success is built on the basis of comparison with others) and a decrease in the perception of a task-involving climate (success is constructed in a self-referenced manner) as the age of the students increases.

Results of this research suggest important practical implications. The group that most strongly established all the social goals and mastery-approach goals was shown to be more self-determined. This suggests that PE students should be encouraged to define success in various ways, to assume competence standards that are mainly self-referenced, to strengthen personal relationships with the closer friends and also with classmates, and, importantly, to assume social responsibilities in the PE class context. Based on the results of this study, PE teachers can increase the students' self-determined motivation by developing their students' sense of responsibility (responsibility goals), generating class climates that encourage closer friendship relationships and of companionship among peers, and emphasizing the importance of improving self-referenced competence.

Among the limitations of the study, its transversal design could be highlighted. Future research should include the approximation-avoidance valences in the social relationship and responsibility orientations as well as the analysis of the adoption of social goals with respect to the teacher. Likewise, a greater number of outcome variables can help to understand in greater depth the combined patterns of social and achievement goals.

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