Motivational profiles as a combination of academic goals in higher education

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Abstract

The aim of the current study was to obtain information from students in higher education on different motivational profiles that resulted from the combination of three academic goals (i.e. learning goals (LG), performance-approach goals and performance-avoidance goals). Moreover, information related to the relevance of each goal within each motivational profile was explored to explain conditions closely related to the academic engagement. The sample consisted of 2556 students from five Spanish universities. Motivational profiles were obtained by using cluster analysis followed by a relevance analysis of each goal within each motivational profile. The results support the hypothesis concerning motivational profiles, and further suggest for motivational profiles with a predominance of LG to be more adaptive. According to our findings, high level of LG in one's motivational profile appear to be a powerful protective factor in maintaining high interest in academic work, as well as high control beliefs and self-efficacy.

Keywords: higher education; motivation; goal setting

In recent studies on the subject of academic motivation, the academic goals approach has become one of the main lines of research (Berger; 2012; Ilker & Demirham, 2013; Zhou, 2013). In an educational setting, students who have adopted learning goals (LG) to increase their skills were initially differentiated from those who chose performance goals to display their skills (Elliot, 1999; Pajares, Britner, & Valiente, 2000). In recent decades, researchers have contemplated the possibility of goals, traditionally considered exclusive (e.g. LG vs. performance goals), having complementary and differential impact on students' behaviour in their study and learning processes (Darnon, Dompnier, Gilliéron, & Butera, 2010; Ng, 2008; Núñez et al., 2011). Researchers have further postulated that it is possible for students to pursue LG and performance goals at the same time using one or the other depending on their personal characteristics, the nature of the assigned task and situational or contextual variables, thereby attaining higher levels of motivation, self-regulation of learning and academic achievement (e.g. Bouffard, Boisvert, Vezeau, & Larouche, 1995; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000).

These positive and complementary results have led to the consideration that both types of goals may have beneficial effects in academic contexts. Consequently, the multiple goals perspective has become a motivational alternative with great theoretical and applied benefits. Thus, in a longitudinal study carried out with secondary students, Pintrich (2000) concludes that students who are concerned about their performance and about performing better than their classmates, but who are simulta- neously oriented towards learning, follow a parallel trajectory to that of students who are only oriented towards learning. However, Pintrich also notes that this trajectory is not equally adaptive in the case of students only concerned with performance. Thus, simultaneously choosing different goals

in authentic school environments is an option that normally carries most of the benefits at an academic level (Rodríguez et al., 2001; Valle et al., 2003a, 2009).

Subsequently, a tridimensional model was developed (Elliot, 1997, 1999; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997), including performance-avoidance goals, in addition to learning-approach goals and P-ApG, as another category within achievement goals. However, performance-avoidance goals (understood herein as avoidance incompetence in comparison to others) have been scarcely considered in studies on multiple goals, perhaps due to performance- avoidance goals maladaptive character (e.g. Daniels et al., 2008). Taking the latter statement into consideration, our study firstly aimed to investigate the relationship between learning and P-ApG (generally associated with positive outcomes) and performance-avoidance goals (generally associated with maladaptive outcomes) within motivational profiles. The secondary aim of our study was to analyse the relevance of all three academic goals within each motivational profile previously found to explain some conditions closely related to academic engagement.

Perspective of multiple goals

Although research pertaining to the topic of multiple goals has aroused some interest (Barron & Harackiewicz, 2001; Bouffard et al., 1995; Harackiewicz & Linnenbrink, 2005; Harackiewicz et al., 2000; Ng, 2008; Paris, Byrnes, & Paris, 2001; Valle et al., 2003a; Wentzel, 2000), studies in this area, particularly at the university level, are still scarce (Hullemann, Schrager, Bodmann, & Harackiewicz, 2010; Valle et al., 2010). Working with the topic of multiple goals, Daniels et al. (2008) carried out a longitudinal study with university students to explore the hypothesis stating that different cognitive, emotional and performance conditions could result in different motivational profiles.

They obtained evidence of four distinct profiles resulting from the combination of mastery goals and P-ApG: (a) high levels of mastery and P-ApG (multiple goals); (b) predominance of mastery goals (dominant mastery); (c) predominance of P-ApG (dominant performance); and (d) low levels of mastery and P-ApG (low motivation), which are associated with different cognitive, emotional and achievement conditions. In particular, according to the same authors and in line with other research findings (i.e. Rodríguez-Ayán, 2010; Valle et al., 2003a), the groups of multiple goals with a predominance of LG and performance goals displayed equivalent levels of academic performance and presented a higher level of academic performance than the groups with a low profile in both goals. However, they also found that the group with a predominance of performance goals was psychologically and emotionally more vulnerable than the groups with multiple goal profiles and with a predominance of LG. Specifically, students with a high level of LG (both, predominance of LG and the multiple goals groups) displayed a higher level of engagement in comparison to students with a predominance of performance goals. This finding was interpreted in terms of high level of LG, independent of the level of performance goals, being able to protect students emotionally. Moreover, it was found that the students with a predominance of performance goals display higher levels of anxiety compared to the ones in other profiles.

According to these and several other studies (i.e. Barron & Harackiewicz, 2001; Liem, Lau, & Nie, 2008; Ng, 2008; Núñez et al., 2011; Sideridis, 2007; Valle et al., 2003a), a high level of LG within the motivational profile is a protective factor, whereas a profile with a predominance of performance goals is a risk factor that is responsible for making an individual emotionally vulnerable. Nevertheless, there are also some studies regarding the emerging motivational profiles when simultaneously considering performance-approach and performance-avoidance goals in addition to LG. The above-mentioned

study, by Daniels and colleagues, did not consider performance-approach and performance-avoidance goals simultaneously, which could be the reason for obtaining different motivational profiles compared to those found previously. Therefore, understanding the role of performance-avoidance goals, in the context of motivational profiles, and their relationship with cognitive and motivational consequences in academic learning is an important and rather timely undertaking.

Goals of the investigation

By analysing the data provided by a large sample of university students, the present study has two primary goals. Firstly, the study aims to provide complementary information to that of the obtained in the study of Daniels et al. (2008) by including performance-avoidance goals in the study of motivational profiles. In line with data from Valle et al. (2010), we also hope to obtain evidence of the following six motivational profiles by combining the three types of goals (i.e. LG, P-ApG, and performance-avoidance goals): (a) generalised low motivation, (b) generalised high motivation, (c) predominance of performance-avoidance goals, (d) predominance of LG, (e) predominance of LG and P-ApG and (f) predominance of LG and performance-avoidance goals.

Secondly, we wish to determine the relevance of each of the three academic goals within each of the motivational profiles to explain some conditions closely related to academic engagement, such as (a) the value assigned to tasks, (b) control beliefs, (c) self-efficacy beliefs and (d) test anxiety.

Method

Participants

The sample was composed of 2556 students from five Spanish universities (24.3% men and 75.7% women). The participants were between the ages of 18 and 48 (M = 21.5) and were taking one of the following courses: Chemistry, Nursing, Business Sciences, Psychology, Teaching, Audio-visual Communication, Journalism Studies, Physiotherapy, Speech Therapy, Psychopedagogy (Educational Psychology) and Social Education.

Measurement instruments

To assess *academic goals* (LG, P-ApG and performance-avoidance goals), the 'Goal Orientation Scale' proposed by Skaalvik (1997) was used. The students responded to each item of the questionnaire on a Likert-type scale ranging from 1 (*never*) to 5 (*always*). This instrument has been adapted and used in numerous previous studies with university students (e.g. Rodríguez et al., 2001; Suárez, Cabanach, & Valle, 2001; Valle et al., 2010) and was shown to be a reliable and valid scale for the assessment of academic goals.

The data corresponding to the variables *task value, control beliefs, self-efficacy beliefs* and *test anxiety* were obtained with the scale, Motivated Strategies Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991). Although the responses to the items of the MSLQ were originally rated on a seven-point Likert scale, we adapted this format to a five-point scale for all analysed variables to be on the same response format. Hence, participants responded to all items that comprised the indicators of learning quality on a 1 (*never*) to 5 (*always*) scale. The following four MSLQ subscales used in this study have established a good reliabil- ity: task value (Cronbach's alpha = .81; 6 items), which assesses the degree to which students consider academic tasks and

activities important, interesting and useful; self-efficacy for learning and performance (Cronbach's alpha = .84; 8 items), which assesses students' beliefs about their abilities to achieve good performance; control- of-learning beliefs (Cronbach's alpha = .68; 4 items), which assesses the strength of students' beliefs in their control over their own learning processes; and test anxiety (Cronbach's alpha = .70; 8 items).

Procedure

The study was conducted during regular class hours on the campuses of participating universities with voluntary student participation. All participating college students were informed about the research objectives and assured that the collected data would be used for scientific purposes only.

Data analysis

Cluster analysis is one of the most frequently recommended solutions for identifying multiple goal profiles (Pastor, Barron, Davis, & Miller, 2004). Taking into account that cluster analysis does not present a unique solution and that the target of this study was to analyse the viability of the solution found by Valle et al. (2010), a nonhierarchical procedure (*k-means*) was implemented following the recommendations of Hair, Anderson, Tatham, and Black (1999). The criterion for choosing the number of clusters was for maximising the inter-cluster differences and ensuring the theoretical viability of the groups with different motivational profiles. ANOVAs were conducted to determine whether the groups of subjects obtained through cluster analysis present significantly different profiles in relation to the three types of academic goals (i.e. LG, P-ApG and performance-avoidance goals) and the cognitive-motivational variables measured in this study (i.e. task value, control beliefs, self-efficacy beliefs, and test anxiety). Lastly, to

address the second goal of the study, we carried out a multiple linear regression analysis (stepwise method) to examine the relevance of each type of goal within each motivational profile when explaining the levels of the four cognitive-motivational variables. One of the most commonly used parameters in educational research literature, Partial eta-squared η_p^2, was used as a measure of the effect size (see, for example, Sun, Pan, & Wang, 2010). Based on Cohen's (1988) prominent work, a 'small' strength association is defined as η^2 = .010 (Cohen's *d* = .20), a 'medium' strength association is defined as η^2 = .059 (Cohen's *d* = .50) and a 'large' strength association is defined as η^2 = .138 (Cohen's *d* = .80).

Results

Preliminary analyses

Table 1 presents the descriptive statistics and correlations among the three academic goals together with the examined four cognitive-motivational variables. Before conducting the statistical analyses, we examined the matrix for missing data, the presence of outliers, as well as the linearity and normality of the data.

First, the data were examined to verify whether there were significant missing values in any of the variables or subjects. With regard to the subjects, twelve students were eliminated from the database because seven presented a high number of missing data and five presented outlier values. Regarding the variables following the recommendations of Kline (2010), no significant absences were found (in all cases, less than 1.2%). Second, we examined the distribution of each variable in terms of their kurtosis and skewness, with all of the above-mentioned variables hav- ing values approaching the normal distribution (see Finney & DiStefano, 2006). Third, as expected, LG had a close and positive relationship with task value, control beliefs, self-efficacy beliefs as well as an absence of relationship with test anxiety. Furthermore, P-ApG and performance-

avoidance goals (P-AvG) showed a strong and positive relationship with test anxiety and a very low relationship with task value, control beliefs and self-efficacy beliefs (mainly in the case of P-AvG).

Motivational profiles

To address the first goal of the study, we initially carried out a cluster analysis, imposing the condition of six groups, in accordance with the results of Valle et al. (2010). The data provided by this analysis suggested the rejection of this hypothe- sis, since only four out of six motivational profiles previously identified in the study by Valle et al. were found (i.e. high generalised motivation, predominance of LG, predominance of LG and P-ApG and low generalised motivation); the remaining two profiles were new groupings. As the results of Valle et al. (2010) were not replicated with a specific six-cluster solution, we subsequently performed a second analysis requesting a seven-cluster grouping. Following the above-mentioned criteria, the results of the new analysis showed a solution that coincides much more with the profiles obtained in the former solution by Valle et al. Figure 1 shows the graphic representation of these profiles (the raw scores were transformed into corresponding *z* scores) and Table 2 shows the raw scores and standardised scores corresponding to the final cluster centres.

The data obtained in the second cluster analysis showed six out of seven groupings conceptually similar to those obtained by Valle et al. (2010), with an addition of a seventh group, theoretically acceptable, comprised of students with a motivational profile as well as predominance of high performance goals (with both tendencies) and low LG.

Specifically, the first group is characterised by a predominance of LG (Group LG, N = 525; 20,5%), that is, students with a motivational profile exclusively oriented towards learning and assuming as a primary goal, the development of skills and competences

through a high degree of engagement and commitment to the learning process. The second group is characterised by a predominance of LG and performance-avoidance goals (Group LG/P-AvG, *N* = 634; 24,8%) and displays a motivational profile that combines interest in developing capacities and competences (interest in intellectual growth) with the desire to avoid signs of incompetence before others (which involves a high component of fear of failing). The third group is characterised by a predominance of performance-avoidance goals (Group P-AvG, *N* = 242; 9.5%), that is, students with a motivational profile oriented exclusively to avoiding failure (defined interpersonally, i.e. through comparison with others); consequently, their motivational priorities revolve around not appearing incompetent before other people. The fourth group (Group HM-MG, *N* = 303; 11.8%) is characterised by multiple goals (LG, P-ApG and performance-avoidance goals) and is defined by high generalised motivation; thus, these participants combine interest of learning and improving their capacities and competences with interest of display- ing such capacities to others and avoiding signs of incompetence. The fifth group is characterised by a predominance of P-ApG and performance-avoidance goals (Group P-ApG/P-AvG, *N* = 187; 7.3%). Students with this motivational profile are oriented towards their own self and personal image and combine success-approach and failure-avoidance motivations (in both cases, defined interpersonally through comparison with peers). Hence, these students are primarily motivated by displaying their capacities to others and avoiding situations that could reflect low incompe- tence. The sixth group (Group LM, *N* = 336; 13.2%) is characterised by low scores in all assessed goals and showed a low generalised motivation; these students are not interested in increasing their knowledge and competences, nor do they seem very concerned about the events or situations that could make others challenge their personal image. Lastly, the seventh group is characterised by a predominance of LG and P-ApG (Group LG/P-ApG, *N* = 329; 12.9%).

These students show a motiva- tional profile that combines an interest in learning and developing competence with an interest in displaying these competences and capacities to others (it is clearly a motivational profile oriented towards learning and achievement). Since the clusters were chosen to maximise the differences between the diverse groups, we provide the data from the MANOVA indicating the presence of statistically significant inter-group differences in the set of the three types of goals (Wilks' Lambda = .035, $F_{18, 7204}$ = 903.03, p< .001, η^2 = .671) and for each of the academic goals considered individually: LG ($F_{6, 2549}$ = 536.13, p< .001, η^2 = .558), P-ApG ($F_{6, 2549}$ = 872.10, p< .001, η^2 = .672), P-AvG ($F_{6, 2549}$ = 1495.99, p< .001, η^2 = .779). The effect sizes for all three types of academic goals were large.

With regard to the differences among the profiles of the motivational variables, the results yield statistically significant differences among the seven groups of par- ticipants, regardless of whether we used the averaged differences for the four dependent variables considered concurrently (Wilks' Lambda = .586, $F_{24, 8883.14}$ = 61.21, p< .001, η^2 = .125), a mean effect size or each of the four variables were considered individually (task value ($F_{6, 2549}$ = 196.82, p< .001, η^2 = .317, a large effect size), control beliefs ($F_{6, 2549}$ = 45.85, p< .001, η^2 = .097, a medium effect size), self-efficacy beliefs ($F_{6, 2549}$ = 73.73, p< .001, η^2 = .148, a large effect size) and test anxiety ($F_{6, 2549}$ = 46.35, p< .001, η^2 = .098, a medium effect size)). Table 3 shows the descriptive statistics (mean and standard deviation) and the comparisons (Scheffé test) that were not significant among the seven groups of motivational profiles in the four cognitive-motivational variables.

Relevance of each academic goal within the motivational profile in the prediction of task value, control beliefs, self-efficacy beliefs and test anxiety

To address the second goal of the study, we performed 28 linear regression analyses (stepwise method, one for each motivational group and dependent variable). There- fore, for each motivational group, the dependent variables were the task value, control beliefs, self-efficacy beliefs and test anxiety, with predictor variables being the three types of goals (LG, P-ApG and performance-avoidance goals).

Table 4 shows obtained results regarding the *task value.* As displayed in the table, out of the three types of goals that configure the seven motivational profiles, levant in the prediction of task value, which is true for all considered motivational profiles. In fact, only LG significantly and positively predict task value (with a large effect size): LG (β = .498, p< .001, R^2 = .236); LG/ P-AvG (β = .486, p< .001, R^2 = .236); P-AvG (β = .704, p< .001, R^2 = .495); HM- MG (β = .499, p< .001, R^2 = .249); P-ApG/P-AvG (β = .479, p< .001, R^2 = .229); LM (β = .687, p< .001, R^2 = .472); LG/P-ApG (β = .619, p< .001, R^2 = .383), except for LG Group, where performance-avoidance goals also had a significant, albeit negative weight (β = .119, p< .001, R^2 = .014, a small effect size). These results indicate that changes in interest of learning (LG) lead to changes in the same direction in the value granted to the learning tasks (i.e. the higher the interest in learning, the greater the perceived task value and in the contrary, the lower the interest in learning, the lower the task value) and that the higher the performance- avoidance goal (greater fear of failure), the lower the task value.

With regard to the prediction of *control beliefs*, the obtained data suggests a similar pattern of prediction as in the case of task value (see Table 5). As in the previous case, LG are the only goals that significantly and positively predict control beliefs: LG (β =

.212, $p < .001$, $R^2 = .045$, a small effect size); LG/P-AvG ($\beta = .161$, $p < .001$, $R^2 = .026$, a small effect size); P-AvG ($\beta = .315$, $p < .001$, $R^2 = .099$, a

The data corresponding to the analyses of *self-efficacy beliefs* are shown in Table 6. In contrast to the two former cases, self-efficacy beliefs are predicted by the three types of goals (profiles LG, HM-MG and LG/P-ApG) by LG and P-ApG in the group with the LM profile, and by LG only in the groups with the LG/P-AvG, P-AvG and P-ApG/P-AvG profiles. Whereas, LG and P-ApG have a positive association with self-efficacy beliefs in all seven groups of participants, the relationship between performance-avoidance goals and self-efficacy beliefs is negative. As in the case of task value and control beliefs, considering the effect size, LG have a greater predictor capacity.

Lastly, with regard to *test anxiety*, we obtained results that are slightly different from those found in the case of task value, control beliefs and self-efficacy (see Table 7). In this case, performance-avoidance goals have the highest predictive power (LG ($\beta = .175$, $p < .001$, $R^2 = .030$, a small effect size); LG/P-AvG ($\beta = .197$, $p < .001$, $R^2 = .039$, a small effect size); HM-MG ($\beta = .256$, $p < .001$, $R^2 = .065$, a medium effect size); LM ($\beta = .132$, $p < .05$, $R^2 = .017$, a small effect size); LG/P-ApG ($\beta = .145$, $p < .01$, $R^2 = .021$, a small effect size), except for the P-ApG/P-AvG profile ($\beta = -.141$, $p = .114$, $R^2 = .000$)), whereas LG have no significant relation with test anxiety (except for profile P-AvG: $\beta = .183$, $p < .01$, $R^2 = .034$, a small effect size).

Discussion

The present investigation addressed two main goals. Firstly, focusing on university students, we aimed to complement the study of Daniels et al. by analysing the role of performance-avoidance goals and finding evidence of motivational profiles, such as those identified in recent investigations (Valle et al., 2010).

Secondly, we attempted to determine the relevance of each academic goal within each of the motivational profiles to explain task value, control beliefs, self-efficacy and test anxiety.

With regard to the first goal, the data provided by this study align, to a large extent, with those obtained by Valle et al. (2010) as the six motivational profiles obtained in that study were identified here as well. The only difference is that in the present work, a new motivational profile, that is, predominance of performance- approach and performance-avoidance goals has been identified.

Moreover, ANOVA analyses revealed performance-avoidance goals as the motivational orientation mostly contributing to the differentiation of the seven groups. This important finding strengthens research support for this academic goal in future investigations. As noted by Valle et al. (2010), taken together, these results have clear implications for research in the field of academic goals and for psycho- educational intervention and assessment, as they indicate the need to consider motivational profiles instead of specific scores in particular goals (Valle et al., 2009). With regard to the inter-group differences in the analysed cognitive-motivational and emotional variables, the results indicate that students in all motivational profiles who oriented predominantly towards LG – either individually or combined with other goals (LG, LG/P-ApG, LG/P-AvG and HM-MG) – present a more adaptive pattern from the motivational perspective. In contrast, students showing a motiva- tional profile in which LG are not predominant (P-ApG/P-AvG, P-AvG and LM) display a more maladaptive pattern at the motivational level. These results coincide with those obtained by Daniels et al. (2008), despite the fact that (1) different assess- ment instruments were used; (2) the construct of performance goals was assessed in its two facets; and (3) some of the used cognitive-motivational variables for testing the profiles were different from those considered in the previous study. The regression

analyses provided relevant information that leads to a better understanding of the obtained motivational nature of the profiles. One of the most interesting aspects of these findings was an existence of differences among motivational profiles in terms of variables such as task value, control beliefs and self-efficacy beliefs mainly linked to levels of LG with performance goal levels being irrelevant (in any of the seven profiles). This result can be interpreted as a corroboration of Daniels et al. (2008) findings, in that higher levels of LG within the motivational profile seem to be a powerful protective factor in maintaining students' high interest in academic tasks, high beliefs control and high perceived efficacy (Kolic-Vehovec, Roncevic, & Bajsanski, 2008; Ng, 2008; Zimmerman, 2000).

Similar to research conducted by Daniels et al. (2008), Pekrun, Elliot, and Maier (2009) present study results add to prior findings stating that test anxiety is related not to the level of LG, but rather to the level of performance goals. However, the findings provided by this investigation notably qualify those contributed by the above-mentioned studies, as they contemplate the double facet of performance goals (i.e. approach and avoidance). In this sense, the results obtained herein indicate that only the facet of performance-avoidance is significantly related to anxiety and P-ApG are not. In fact, P-ApG do not significantly explain the cognitive-motivational and emotional variables studied in any of the seven profiles.

The notion that goals organise and regulate behaviour has been crucial to the understanding of the relationship between motivations, learning and academic achievement (Dowson & McInerney, 2003; Steinmayr & Spinath, 2009; Valle et al., 2003b). In most cases, research in this field has generated important, yet unresolved, debates about the educational benefits of LG with regard to self-oriented and performance goals (Brophy, 2005; Liem et al., 2008). However, the current investigation suggests that adaptation to the school setting necessarily includes considering multiple goals, both

academic and social (Wentzel, 1999; Wentzel, 2000). Presently, conceptualisation and ability to measure the dynamic nature of multiple goals (Harackiewicz & Linnenbrink, 2005; Hullemann et al., 2010) appears to be two of the standing problems in the field. The reasons for the scarcity of research in multiple goals and the great challenges for future research may both lie herein.

To conclude, the results of motivational research from the perspective of multiple goals lead to certain educational implications, particularly in the area of attention to diversity (in this case, attention to motivational diversity). Just as students differ in their knowledge and competences, they also differ in their motivational levels. Acknowledgement of these individual differences allows teachers to consider students' real motivations as the starting point for designing instructional processes. Students' motivations explain their actual academic behaviour and condition their future engagements. These motivations are numerous and diverse in their nature, as reported here as well as in other studies. Therefore, the concept of attention to diversity requires that teachers work in this motivational zone of proxi- mal development (Brophy, 1998). Moreover, such diversity in motives also signifies that from a motivational perspective, there are diverse ways to achieve learning and academic success. While some ways are more desirable than others, not all students must follow the same motivational track.

Limitations and implications for future research

The present study presents some limitations that prevent further generalisation of the obtained results. Firstly, the correlational nature of the data precludes extracting causal conclusions. Secondly, although the data suggest the existence of the six motivational profiles found by Valle et al. (2010), this proposal must be confirmed by studies conducted in different educational contexts and by different instruments to assess

multiple goals. Thirdly, more investigations are needed to study how motivational profiles are developed and consolidated and how they change their specificities depending on the contingencies of the educational and social context (Gonida, Voulala, & Kiosseoglou, 2009; Urdan, Solek, & Schoenfelder, 2007; Wolters, 2004). Fourthly, in the present investigation, we sought motivational profiles based on combinations of academic goals; however, it is possible to expand the range of these profiles by taking into account other motivations of an interper- sonal and social nature in addition to academic goals. In this sense, Wentzel (1999) indicated that adaptation to school requires the pursuit of multiple and complemen- tary goals, both social and academic. Nevertheless, despite the suggestiveness of these proposals, research on the importance of social goals in academic motivation remains to be explored within the profile of multiple goals (Levy-Tossman, Kaplan, & Assor, 2007). Lastly, as indicated by Harackiewicz and Linnenbrink (2005), additional research is urgently required to develop and validate procedures for measuring the profile of multiple goals.

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Table 1. Means, standard deviations, skewness, kurtosis, and Pearson correlations matrix.

	1	2	3	4	5	6	7
1.Learning goals	–						
2.Performance-approach goals	.070[b]	–					
3.Performance-avoidance goals	–.007	.312[b]	–				
4.Task value	.733[b]	.021	–.048[b]	–			
5.Control beliefs	.405[b]	.029	–.037	.517[b]	–		
6.Self-efficacy beliefs	.475[b]	.152[b]	–.115[b]	.518[b]	.613[b]	–	
7.Test anxiety	–.008	.115[b]	.339[b]	–.042[a]	–.138[b]	–.348[b]	–
M	3.66	2.04	2.39	3.61	3.61	3.36	3.03
SD	.819	.903	1.042	.902	.763	.723	.845
Skewness	–.658	.763	.426	–.559	–.479	–.365	–.083
Kurtosis	.365	.111	–.610	.065	.539	.331	–.207

[a]$p < .05$. [b]$p < .01$.

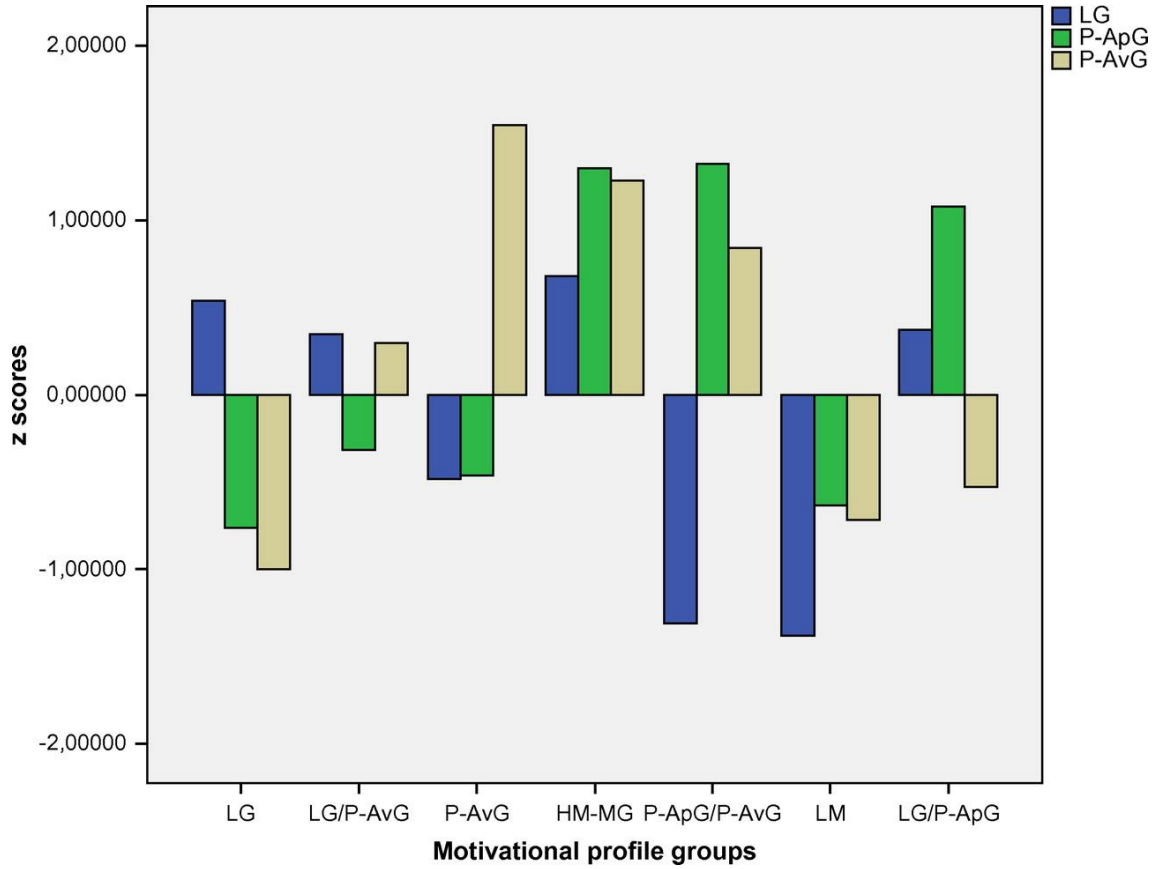

Figure 1 Graphical representation of the cluster analysis findings. LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (Low Motivation); LG/P-ApG (learning goals/Performance-Approach Goals).

Table 2. Final cluster centres (direct and standardised scores).

	RS	SS
LG group		
Learning goals	4.10	.537
Performance-approach goals	1.35	–.761
Performance-avoidance goals	1.35	–.996
LG/P-AvG group		
Learning goals	3.94	.346
Performance-approach goals	1.76	–.315
Performance-avoidance goals	2.70	.296
P-AvG group		
Learning goals	3.26	–.483
Performance-approach goals	1.62	–.462
Performance-avoidance goals	3.99	1.542
HM-MG group		
Learning goals	4.22	.680
Performance-approach goals	3.21	1.296
Performance-avoidance goals	3.67	1.229
P-ApG/P-AvG group		
Learning goals	2.59	−1.308
Performance-approach goals	3.23	1.321
Performance-avoidance goals	3.27	.841
LM group		
Learning goals	2.53	−1.379
Performance-approach goals	1.47	−.631
Performance-avoidance goals	1.65	−.714
LG/P-ApG group		
Learning goals	3.97	.372
Performance-approach goals	3.01	1.077
Performance-avoidance goals	1.84	−.528

Note: RS (raw scores); SS (standardised scores: *z* scores $M = 0$, $SD = 1$).LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals).

Table 3. Descriptive statistics (M, SD) and statistical significance of the differences among seven groups of motivational profiles in four cognitive-motivational variables.

	Task value		Control beliefs		Self-efficacy beliefs		Test anxiety		
Motivational profiles	N	M	SD	M	SD	M	SD	M	SD
1. LG	525	4.06	.705	3.81	.700	3.58	.651	2.67	.869
2. LG/P-AvG	634	3.76	.678	3.62	.623	3.35	.583	3.06	.753
3. P-AvG	242	3.40	.868	3.54	.767	3.05	.723	3.51	.779
4. HM-MG	303	3.96	.681	3.78	.687	3.58	.655	3.42	.761
5. P-ApG/P-AvG	187	2.79	.746	3.25	.847	3.02	.733	3.15	.703
6. LM	336	2.61	.846	3.14	.885	2.92	.784	2.92	.887
7. LG/P-ApG	329	3.89	.789	3.82	.695	3.74	.650	2.90	.810
No significant comparisons with Scheffé test	1–4, 1–7, 2–7, 4–7, 5–6		1–4, 1–7, 2–3, 2–4, 3–2, 4–7, 5–6		1–4, 1–7, 3–5, 3–6, 4–7, 5–6		2–5, 2–6, 2–7, 3–4, 5–2, 5–6, 5–7, 6–7		

Note: LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals).

Table 4. Results of the regression analysis for the prediction of task value.

	R^2	β	t	p
LG group ($n = 525$)				
Learning goals	.236	.498	13.454	.000
Performance-approach goals	–	−.047	−1.275	.203
Performance-avoidance goals	.014	−.119	−3.221	.000
LG/P-AvG group ($n = 634$)				
Learning goals	.236	.486	13.757	.000
Performance-approach goals	–	.005	.140	.889
Performance-avoidance goals	–	−.032	−.884	.377
P-AvG group ($n = 242$)				
Learning goals	.495	.704	14.952	.000
Performance-approach goals	–	−.058	−1.230	.220
Performance-avoidance goals	–	−.055	−1.152	.250
HM-MG group ($n = 303$)				
Learning Goals	.249	.499	9.415	.000
Performance-approach goals	–	−.072	−1.355	.177
Performance-avoidance goals	–	−.017	−.314	.754
P-ApG/P-AvG group ($n = 187$)				
Learning goals	.229	.479	6.938	.000
Performance-approach goals	–	.010	.147	.883
Performance-avoidance goals	–	.041	.567	.571
LM Group ($n = 336$)				
Learning goals	.472	.687	17.991	.000
Performance-approach goals	–	.000	−.013	.990
Performance-avoidance goals	–	−.017	−.455	.649
LG/P-ApG group ($n = 329$)				
Learning goals	.383	.619	14.923	.000
Performance-approach goals	–	−.071	−1.709	.088
Performance-avoidance goals	–	−.009	−.226	.821

Note: LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals).

Table 5. Results of the regression analysis for the prediction of control beliefs.

	R^2	β	t	p
LG group ($n = 525$)				
Learning goals	.045	.212	5.095	.000
Performance-approach goals	–	.014	.346	.730
Performance-avoidance goals	–	−.016	−.380	.704
LG/P-AvG group ($n = 634$)				
Learning goals	.026	.161	4.044	.000
Performance-approach goals	–	−.025	−.619	.536
Performance-avoidance goals	–	−.058	−1.408	.160
P-AvG group ($n = 242$)				
Learning goals	.099	.315	5.016	.000
Performance-approach goals	–	−.047	−.747	.456
Performance-avoidance goals	–	.016	.250	.803
HM-MG group ($n = 303$)				
Learning goals	.122	.350	6.099	.000
Performance-approach goals	–	−.079	−1.374	.171
Performance-avoidance goals	–	.048	.839	.402
P-ApG/P-AvG group ($n = 187$)				
Learning goals	.132	.363	4.959	.000
Performance-approach goals	–	−.127	−1.739	.084
Performance-avoidance goals	–	−.121	−1.574	.117
LM Group ($n = 336$)				
Learning goals	.171	.414	8.653	.000
Performance-approach goals	–	−.031	−.649	.517
Performance-avoidance goals	–	−.005	−.106	.915
LG/P-ApG group ($n = 329$)				
Learning goals	.080	.283	5.576	.000
Performance-approach goals	–	.079	1.548	.123
Performance-avoidance goals	–	−.073	−1.446	.149

Note: LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals)

Table 6. Results of the regression analysis for the prediction of self-efficacy**.**

	R^2	β	t	p
LG group ($n = 525$)				
Learning goals	.077	.283	6.958	.000
Performance-approach goals	.007	.085	2.093	.037
Performance-avoidance goals	.015	−.117	−2.880	.004
LG/P-AvG group ($n = 634$)				
Learning goals	.086	.296	7.565	.000
Performance-approach goals	–	.014	.352	.725
Performance-avoidance goals	–	−.073	−1.843	.066
P-AvG group ($n = 242$)				
Learning goals	.187	.433	7.253	.000
Performance-approach goals	–	−.030	−.499	.618
Performance-avoidance goals	–	−.056	−.924	.357
HM-MG group ($n = 303$)				
Learning goals	.132	.371	6.583	.000
Performance-approach goals	.015	.125	2.229	.027
Performance-avoidance goals	.014	−.120	−2.121	.035
P-ApG/P-AvG group ($n = 187$)				
Learning goals	.131	.362	4.937	.000
Performance-approach goals	–	.045	.615	.540
Performance-avoidance goals	–	−.087	−1.126	.262
LM group ($n = 336$)				
Learning goals	.158	.395	8.214	.000
Performance-approach goals	.009	.097	2.022	.044
Performance-avoidance goals	–	−.018	−.376	.707
LG/P-ApG group ($n = 329$)				
Learning goals	.147	.360	7.619	.000
Performance-approach goals	.064	.244	5.173	.000
Performance-avoidance goals	.018	−.135	−2.887	.004

Note: LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals).

Table 7. Results of the regression analysis for the prediction of test anxiety.

	R^2	β	t	p
LG group ($n = 525$)				
Learning goals	–	−.004	−.099	.921
Performance-approach goals	–	.032	.773	.440
Performance-avoidance goals	.030	.175	4.171	.000
LG/P-AvG group ($n = 634$)				
Learning goals	–	.017	.429	.668
Performance-approach goals	–	.051	1.279	.201
Performance-avoidance goals	.039	.197	4.958	.000
P-AvG group ($n = 242$)				
Learning goals	.034	.183	2.815	.005
Performance-approach goals	–	−.007	−.108	.914
Performance-avoidance goals	–	.109	1.677	.095
HM-MG group ($n = 303$)				
Learning goals	–	−.019	−.313	.754
Performance-approach goals	–	.059	.999	.319
Performance-avoidance goals	.065	.256	4.322	.000
P-ApG/P-AvG group ($n = 187$)				
Learning goals	–	−.032	−.390	.697
Performance-approach goals	–	−.027	−.324	.746
Performance-avoidance goals	–	−.141	1.590	.114
LM group ($n = 336$)				
Learning goals	–	−.048	−.912	.362
Performance-approach goals	–	.017	.318	.751
Performance-avoidance goals	.017	.132	2.538	.012
LG/P-ApG group ($n = 329$)				
Learning goals	–	.091	1.742	.082
Performance-approach goals	–	−.045	−.861	.390
Performance-avoidance goals	.021	.145	2.779	.006

Note: LG (learning goals); LG/P-AvG (learning goals/performance-avoidance goals); P-AvG (performance-avoidance goals); HM-MG (high motivation by multiple goals); P-ApG/P-AvG (performance-approach goals/performance-avoidance goals); LM (low motivation); LG/P-ApG (learning goals/performance-approach goals).