






School social climate and personal and social responsibility of high school students in secondary school according to their motivational profile

-  **David Manzano-Sánchez.** *Department of Physical Activity and Sport. Faculty of Sports Sciences. University of Murcia. Spain.*
-  **Noelia Belando-Pedreño.** *Department of Physical Activity and Sport. Faculty of Sports Sciences. European University of Madrid. Spain.*
-  **José Francisco Jiménez-Parra** . *Department of Physical Activity and Sport. Faculty of Sports Sciences. University of Murcia. Spain.*
-  **Alfonso Valero-Valenzuela.** *Department of Physical Activity and Sport. Faculty of Sports Sciences. European University of Madrid. Spain.*

ABSTRACT

The aim of the present study was to analyse the motivational profile of high school students and how it was related to responsibility, basic psychological needs and school social climate, as well as to assess gender differences. For this purpose, a total sample of 302 students ($M = 14.48$; $SD = 1.40$) participated and were administered a multiple-choice questionnaire, where, in turn, gender and date of birth were asked. A profile analysis was performance using Ward's method and k-means using the motivation scale (intrinsic motivation, identified, introjected and external regulation, amotivation) as variables for its elaboration. Two cluster profiles were finally created and named: a) "high motivation and low amotivation" ($n = 212$); b) "low motivation and high amotivation" ($n = 95$). Next, a multivariate analysis was performed, which showed that high motivation profile had statistically significant results at $p < .001$, higher in the satisfaction of the basic psychological needs of autonomy, competence and relatedness, personal and social responsibility and school social climate. On the other hand, attending to gender, no significant differences were found in the number of students in the profiles after analysing the standardized residuals. It is concluded that an increase in self-determined motivation can be associated to an improvement in basic psychological needs, responsibility and school social climate, regardless of the student's gender.

Keywords: Physical activity psychology, Basic psychological needs, Gender, School, Self-determination theory.

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 **Corresponding author.** *Department of Physical Activity and Sport. Faculty of Sports Sciences. University of Murcia. Calle Argentina, 19, 30720 San Javier (Murcia), Spain.*

E-mail: josefrancisco.jimenezp@um.es

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INTRODUCTION

In the educational field, motivation is considered one of the personal variables most associated with students' learning and academic performance (Rodríguez & Rosquete, 2018), arousing great research interest among the educational scientific community (Navarro-Patón et al., 2019; Sandin & Curione, 2021; Vázquez-Toledo et al., 2021). Within the academic context, school motivation is understood as the set of beliefs held by students in relation to their final goals and that allow us to know the main reasons for students to adopt behaviours of greater persistence towards the task (Gaeta et al., 2015; Usán Supervía & Salavera Bordás, 2018).

This variable is a fundamental element for achieving meaningful learning in students, as it is directly related to their interests and contributes to the comprehensive development of their abilities, overcoming their own limitations (Sellan Naula, 2017). Thus, a student with a high degree of motivation will have a greater predisposition to learn and to show positive behaviour towards the learning process (Navarro-Patón et al., 2019; Rodríguez & Rosquete, 2018; Sellan Naula, 2017).

Among the frameworks used to study students' motivational processes, the Self-Determination Theory (SDT, Deci & Ryan, 1985, 2000) stands out. This macro-theory studies and analyses the degree to which human behaviours are performed in a self-determined or voluntary manner (Granero-Gallegos et al., 2014). Within this theoretical framework, motivation is conceived as a continuum comprising different degrees or levels of self-determination of behaviour, from self-determined to non-self-determined, distinguishing between the two, 3 large blocks ordered from greater to lesser degree of self-determination: intrinsic motivation, extrinsic motivation and amotivation (Granero-Gallegos et al., 2014; Trigueros et al., 2020). Intrinsic motivation constitutes the highest degree of self-determination, which is characterised by the student's commitment to an activity that brings pleasure and enjoyment (Trigueros et al., 2020). The second block corresponds to extrinsic motivation, which establishes that a person's behaviour is influenced by external factors (Menéndez-Santurio & Fernández-Río, 2017). Within this construct, we find other types of regulation (Granero-Gallegos et al., 2014; Ryan & Deci, 2014), also ordered from greater to lesser self-determination: (1) integrated regulation, when a student performs activities because it relates to a lifestyle of his or her own, (2) identified regulation, when the student performs a task because he or she considers it important for him or herself, (3) introjected regulation, when the student participates in class out of guilt, and (4) external regulation, when the student participates in tasks out of obligation and seeks the attainment of rewards or recognition by others. The last construct refers to amotivation, which is associated with an absence of motivation and feelings related to frustration or incompetence (Sánchez et al., 2011).

In this line of argument, SDT establishes the existence of 3 basic psychological needs that must be met in the social context of the individual and that can influence the different types of motivation (Deci & Ryan, 2002). These needs are considered psychological mediators of motivation (Sánchez et al., 2011) and are: (1) autonomy, the student's need to feel like a guide and regulator of his or her own learning and behaviour, (2) relatedness, referring to the need to feel satisfied by relating to others and participating in a group (affiliation), and (3) competence, associated with the student's need to feel able to overcome the proposed tasks and activities effectively. Thus, the degree of self-determination achieved by the individual will depend on whether or not these basic psychological needs are satisfied, i.e., the greater the satisfaction of students' needs, the higher levels of self-determination and intrinsic motivation will be achieved (Deci & Ryan, 2000; Menéndez-Santurio & Fernández-Río, 2017).

In this way, it can be observed that the most self-determined motivation is the most relevant (Menéndez-Santurio & Fernández-Río, 2017) since, according to scientific evidence, this motivation is directly related to adaptive behaviours such as satisfaction and enjoyment (Méndez-Giménez et al., 2017), prosocial behaviours (Manzano-Sánchez et al., 2021b) or the intention to be physically active (Granero-Gallegos et al., 2014); and social factors such as personal and social responsibility (Fernández-Hernández et al., 2021; Manzano-Sánchez et al., 2021a, 2021b) or school social climate (Manzano-Sánchez et al., 2021a, 2021b).

On the other hand, there are numerous scientific investigations that have studied academic motivation as a function of gender (Delgado et al., 2010; Gómez & Riccetti, 2016; Granero-Gallegos et al., 2014; Granero-Gallegos & Gómez-López, 2020), mostly finding that males present higher values in self-determined motivation than females. The studies by Granero-Gallegos et al. (2014) and Granero-Gallegos and Gómez-López (2020) show that boys are more associated with the "high motivation" profile, while the "low motivation" profile is mostly associated with girls.

Taking into account the above theoretical background, the main objective of the present study was to analyse the motivational profile of secondary school students and its relationship with responsibility, basic psychological needs and school social climate, as well as to assess gender differences. Therefore, it is hypothesized that there are two different motivational profiles, the more self-determined motivational profile being positively related to higher values in responsibility, the satisfaction of basic psychological needs and the social climate of the classroom. Regarding gender, there will be differences in the number of members in the different motivational profiles, with men having a greater participation in the more self-determined profile.

MATERIAL AND METHODS

Design

A descriptive, correlational and analytical observational cross-sectional study design has been used, following the quantitative methodology.

Participants

The sample of this study was initially composed of 327 secondary school students, who, after following the inclusion and exclusion criteria, were a total of 307, being 149 men (48.5%) and 158 women (51.5%) with a mean age $M = 14.48$; $SD = 1.40$. The inclusion criteria were: completing all the items in the questionnaire, doing it with the researcher and the teacher in class, and meeting the legitimacy criteria of the statistical analysis to detect atypical cases.

Instruments

Questionnaire for the analysis of basic psychological needs (PNSE, Vlachopoulos & Michailidou, 2006)

To measure the satisfaction of the needs of competence, autonomy and social relationship adapted to Spanish by Moreno et al., (2008). The scale is made up of 18 items, six to assess each of the needs: competence (e.g., "I am confident to do the most challenging exercises"), autonomy (e.g., "I think I can make decisions in my workouts"), and relationship with others (e.g., "I feel close to my training partners because they accept me as I am"). The previous sentence is "In my trainings..." and the answers are collected on a Likert-type scale, whose score ranges from 1 (totally disagree) to 5 (totally agree). The reliability values were .855 (autonomy), .882 (competence) and .872 (relationship).

Questionnaire for the analysis of the levels of personal and social responsibility (PSRQ, Li et al., 2008)

To measure the levels of personal responsibility and social responsibility adapted to Spanish by Escartí et al. (2011). The scale is made up of 14 items, seven for evaluating social responsibility (e.g., "I help others") and seven for personal responsibility (e.g., "I propose goals for myself") and the answers are collected on a Likert-type scale whose score range oscillates between 1 (strongly disagree) and 6 (strongly agree). Reliability was .938 (social responsibility) and .859 (personal responsibility).

Academic Motivation Scale (EME, Vallerand et al., 1989)

To measure motivation from the most self-determined forms to the most external causes and amotivation. The questionnaire is made up of 7 subscales, called; intrinsic motivation towards knowledge (e.g., "because I feel pleasure and satisfaction when I learn new things") towards achievement (e.g., "because of the pleasure I feel when I excel in studies") and towards stimulating experiences (e.g., "because reading stimulates me on the issues that interest me"), identified regulation (e.g., "because it will allow me to access the labour market in the field that I like the most"), introjected regulation (e.g., "to show me that I am an intelligent person"), external regulation (e.g., "To get a more prestigious job") and amotivation (e.g., "I don't know, I don't understand what I'm doing in high school"). Adapted to the context of Secondary Education by Nuñez et al. (2010). The instrument is made up of 28 items, preceded by the sentence "I go to school / institute because ..." with a Likert-type scale of five points, from 1 (does not correspond at all) to 7 (corresponds totally) and distributed in seven subscales, five of them with four items and the remaining two with three. Reliability was .959 (intrinsic motivation), .846 (identified regulation), .891 (introjected regulation), .885 (external regulation) and .879 (amotivation).

School Social Climate Scale (CECSCE, Trianes et al., 2006)

Originally designed by the California School Climate and Safety Survey questionnaire (Furlong et al., 1991; Rosenblatt & Furlong, 1997) to measure the centre climate. The questionnaire is made up of 2 subscales called: "centre climate" (e.g., "Students really want to learn"), composed of 8 items and "teachers climate" (e.g., "The teachers of this centre are nice with the students") With a five-point Likert-type scale, from 1 (does not correspond at all) to 5 (fully corresponds). The reliability was .881 (school social climate) and .853 (teacher climate).

Procedure

The design was approved by the Research Ethics Commission of the University of Murcia, code 1685/2017. The data were collected for convenience and accessibility in two Secondary Education centres in the autonomous community of the Region of Murcia. The management team was contacted to inform them of the objectives and request their collaboration, and informed consent was given to all students. Next, information was given on how to fill in the instruments and solve all the doubts that may arise during the process, the questionnaires were administered with the researcher present to make a brief explanation of the objective of the study, administering trying to create a calm environment relaxed during the 5 minutes prior to the performance. The time required to complete the questionnaire was approximately 20 minutes, and it varied slightly according to the age of the students.

Statistical analysis

A profile analysis was performed using student motivation as independent variables (intrinsic motivation, identified regulation, introjected regulation, external regulation and amotivation). To determine the number of profiles, a dendrogram analysis was first performed using the hierarchical method using Ward's method and the most distant neighbour method, obtaining similar results, suggesting the elaboration of two to four sets.

Next, a two-stage cluster corroborated a silhouette measure of cohesion and cluster separation considered good ($> .5$) for two sets. Finally, the K-means method was used to make the final clusters with 2 clusters.

Each profile was examined by means of a multivariate analysis (MANOVA) taking into account the differences found in each of the variables under investigation. Additionally, the clusters were analysed according to gender through an analysis of the chi-square value with 2x2 contingency tables. Statistical analysis was performed using the IBM SPSS 23.0 package.

RESULTS

Descriptive analysis and bivariate correlations

Table 1 shows the descriptive analysis of the different variables under study. It is worth noting practically all the variables had a correlation with each other at $p < .01$ or $.05$, except for amotivation, especially that it had only negative correlation with the rest of the motivational variables (less external regulation), with competition and the climate of the teaching staff. The highest values were for the motivation scale, in external regulation ($M = 5.68$), for basic psychological needs, in the relationship ($M = 3.93$), for the school social climate, the teacher's climate was higher ($M = 3.71$) and in responsibility, social responsibility ($M = 4.69$). Finally, the correlations were significant at $p < .001$ except for competition and fear of angering others, which was at $p < .05$.

Cluster analysis

The cluster analysis was carried out according to the considerations of Hair et al. (1999). The dendrogram obtained suggested the existence of two clusters that were formed by two continuous lines following the Z values (Figure 1). The clusters were grouped into "high motivation" ($n = 212$) and "low motivation" ($n = 95$), with statistically significant higher values in intrinsic, identified, introjected and external motivation for the first profile and in amotivation for the second. The level of significance was $p < .01$ in all cases.



Figure 1. Cluster Z values for the different variables.

Differences in the variables under study

A multivariate analysis (MANOVA) was performed using the clusters as independent variables and the rest of the study variables as dependent variables (Table 2). Significant differences were found at the multivariate level (Wilks's Lambda = $.670$; $F = 28.628$, $p < .001$). The univariate ANOVAs showed statistically significant differences in all variables, in favour of the cluster with high motivation compared to the cluster with low motivation, as shown in Table 2.

Table 1. Descriptive and correlations values among different variables.

	<i>R</i>	<i>M</i>	<i>SD</i>	<i>A</i>	<i>K</i>	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1 Intrinsic motivation	1-7	4,70	1,54	-0,535	-0,583	.786**	.874**	.667**	-.155**	.760**	.688**	.688**	.546**	.729**	.537**	.612**	.608**	.516**	.568**	
2 Identified regulation	1-7	5.43	1.44	-1.006	0.296	1	.758**	.793**	-.213**	.720**	.516**	.596**	.478**	.602**	.468**	.558**	.543**	.605**	.578**	
3 Introjected regulation	1-7	5.03	1.61	-0.683	-0.475		1	.696**	-.174**	.651**	.590**	.599**	.464**	.627**	.466**	.515**	.519**	.486**	.551**	
4 External regulation	1-7	5.68	1.41	-1.170	0.567			1	-.083	.474**	.452**	.556**	.498**	.571**	.381**	.418**	.422**	.623**	.613**	
5 Amotivation	1-7	2.03	1.38	1.607	2.058				1	-.736**	-.040	-.144*	-.053	-.089	-.050	-.140*	-.102	-.027	-.030	
6 SDI	1-7	5.42	4.55	-0.747	0.500					1	.478**	.548**	.393**	.538**	.400**	.519**	.487**	.374**	.392**	
7 Autonomy	1-5	3.19	1.00	-0.295	-0.542						1	.731**	.583**	.879**	.672**	.698**	.724**	.357**	.392**	
8 Competence	1-5	3.70	0.98	-0.825	0.219							1	.664**	.907**	.609**	.699**	.692**	.428**	.493**	
9 Relation	1-5	3.93	0.99	-0.980	0.320								1	.851**	.653**	.599**	.660**	.477**	.411**	
10 BPI	1-5	3.61	0.87	-0.752	0.322									1	.734**	.757**	.787**	.478**	.491**	
11 School climate	1-5	3.56	0.84	-0.603	-0.064										1	.793**	.944**	.382**	.348**	
12 Teacher climate	1-5	3.71	0.88	-0.699	0.026											1	.949**	.364**	.360**	
13 Total climate	1-5	3.64	0.82	-0.676	0.114												1	.394**	.374**	
14 Social responsibility	1-6	4.69	1.12	-1.088	0.339													1	.851**	
15 Personal responsibility	1-6	4.21	1.05	-0.847	-0.273															1

Note. SDI = Self Determination Index; BPI = Basic Psychological Index; R = range; M = Mean; SD = standard deviation; A = Asymmetry; K = kurtosis; ** $p < .01$; * $p < .05$.

Table 2. Multivariate analysis of profiles.

	Cluster "High motivation"			Cluster "Low motivation"			F	p	eta
	R	M	SD	M	SD	SD			
Autonomy	1-53.54		0.82	2.43	0.96		107.781	< .001	0.261
Competence	1-54.06		0.68	2.90	1.07		129.362	< .001	0.298
Relation	1-54.21		0.78	3.31	1.12		65.485	< .001	0.177
BPI	1-53.93		0.61	2.88	0.92		139.435	< .001	0.314
School climate	1-53.79		0.72	3.05	0.88		60.391	< .001	0.165
Teacher climate	1-54.00		0.67	3.07	0.97		92.935	< .001	0.234
Total climate	1-53.90		0.64	3.06	0.89		86.878	< .001	0.222
Social responsibility	1-65.05		0.90	3.89	1.17		90.320	< .001	0.228
Personal responsibility	1-64.54		0.86	3.47	1.08		87.501	< .001	0.223

Wilks' Lambda (λ) = .670 (f = 28.627) p < .001

Note. BPI = Basic Psychological Index; R = range; M = Mean; SD = standard deviation.

Differences in profiles according to gender and age of the sample

Next, an analysis was carried out using contingency tables to check the differences according to the gender of the participants (Table 3). The analysis did not show statistically significant differences, although the value of $p = .069$ shows a high tendency to statistical significance in favour of the girls who predominated in the high motivation cluster.

Cluster 1 was positively associated with women, 53.7%, compared to 46.3% in men, and cluster 2 with men in 53.7%, compared to 46.3% in women, suggesting that men obtained a higher profile. related to amotivation, and women with higher motivation.

Table 3. Differences in motivational profiles by gender.

		Cluster "High motivation"		Cluster "Low motivation"	
		n	%	n	%
Gender	Men	98	46.3%	51	53.7
	Women	114	53.7%	44	46.3
	eta				.266
	Chi ²				0.069

DISCUSSION

The present study aimed to examine the motivational profile of adolescent students, as well as its link with responsibility, basic psychological needs and classroom social climate, and to review gender differences. The satisfaction of students' basic psychological needs is reflected in more self-determined levels of motivation that generate behaviours based on personal and social responsibility (Manzano-Sánchez et al., 2021). Thus, a classroom social climate focused on the teaching-learning process of students favours the acquisition of knowledge (Cid et al., 2019), promotes the development of personal skills (Alevriadou & Pavlidou, 2016; Hidalgo-Rasmusen et al., 2013), generates a greater intention to practice physical activity (Taylor et al., 2010) and reinforces young students' social satisfaction in the classroom (Baena-Extremera et al., 2013; Garn et al., 2014; Vallerand, 1997).

The results of the study show the fulfilment of the research hypothesis in relation to the existence of motivational profiles with two different degrees of self-determined motivation. The variables under study show

a correlation with each other, with the exception of demotivation, which showed a negative association with the rest of the variables of the TAD self-determination continuum (Vasconcellos et al., 2020) (except for external regulation), with competence and with teacher climate. External regulation as a form of motivation was the highest rated. This relates to Iso-Ahola and St. Clair's (2000) definition of motivation as "*the most important and immediate factor in human behaviour*", because it stimulates, energizes, directs and regulates it. Moreover, motivation provides the force that drives and orients the activity of individuals to achieve a goal (Sanpascual, 2007, retrieved from Cuenca-Ruano et al., 2021).

As for the existence of different motivational profiles, the cluster analysis yielded a "*high motivation*" profile ($n = 212$) and a "*low motivation*" profile ($n = 95$), with statistically significant higher values for intrinsic, identified, introjected and external motivation for the first profile and for demotivation for the second. Significant differences were also obtained of the cluster with high motivation with respect to the cluster with low motivation. These results are related to those obtained by Cid et al. (2019) who tested a structural regression model in which a learning-oriented climate had a positive impact on the satisfaction of students' basic psychological needs. However, only competence satisfaction had a positive and significant relationship with students' autonomous motivation, which in turn had a positive and significant relationship with the physical education grade, as well as with intentions to engage in sport/physical activity in leisure time. In the same line of study, Moreno-Murcia et al. (2013) found the existence of two motivational profiles among physical education students: a "*self-determined*" profile with higher scores for the four types of intrinsic motivations (general, knowledge, stimulation and achievement) and identified regulation, compared to introjected and external regulation; and a second "*non-self-determined*" profile with higher scores for external regulation, introjected and amotivation than for the four types of intrinsic motivation (general, knowledge, stimulation and achievement).

Regarding the levels of motivation according to gender, the analysis using contingency tables showed a greater number of girls in the "*high motivation*" cluster. These results contrast with those found in other studies that show that boys are more associated with the "*high motivation*" profile, while the "*low motivation*" profile is mostly associated with girls (Granero-Gallegos et al., 2014; Granero-Gallegos & Gómez-López, 2020). The fact that girls present more self-determined levels of motivation in the PE classroom could be attributed to the importance that teachers attach to variables such as personal and social responsibility and the satisfaction of the BPNs in the classroom, compared to contexts of achievement-oriented goals such as performance, traditionally more linked to the male gender (Ruiz-Juan & Baena-Extremera, 2015).

Regarding the variables of responsibility and classroom or school social climate, a positive and significant association of responsibility with school social climate, basic psychological needs (autonomy, competence and relatedness), the self-determination index and prosocial behaviour was observed (Manzano-Sánchez et al., 2021).

In relation to the limitations of the study, the sample size should be increased and longitudinal design studies should be carried out to establish comparisons over time and in a completely randomised way between motivational profiles at different educational stages (e.g., in primary school). Future research is needed to further analyse different educational contexts in European, American, etc. educational settings. Furthermore, it is necessary to analyse variables related to emotional intelligence and levels of self-determination due to their correlation demonstrated in the studies reviewed and the relevance of these variables on cognitive performance, academic performance and positive emotional conditions.

IMPLICATIONS PRACTISES

The social climate fostered in the classroom plays an important role in students' perception of learning-oriented climates, which might be different, depending on the teaching style. Thus, teachers who encourage students to experience a "*personal and social learning*" oriented climate might have a positive and significant relationship with the satisfaction of basic psychological needs that might be positively linked to physical education grades, i.e.: academic performance. Even providing the opportunity for students to intervene in class through different psychological classroom climates guided by teachers could represent a boost for students in the pedagogical and socio-cultural characteristics of physical education. Teachers have a responsibility to promote task and learning environments in which students experience positive outcomes (Rodriguez et al., 2020).

The level of motivation in physical education classes in adolescent students can be used as a starting point for self-reflection and for designing proactive learning environments, personal development and personal and socio-cultural transferability of competences acquired in the classroom. This would lead to the development of effective didactic interventions, built between teaching competences and skills and the importance of students' cognitive and practical input and feedback. To this end, teachers' own motivation is of great importance, as it correlates significantly with the way they interact with their students.

CONCLUSIONS

The results obtained indicate that the participants who obtained higher levels of self-determined motivation are those who, in turn, have higher values of satisfaction with the BNPs, a better school social climate and higher levels of personal and social responsibility. In turn, girls are those with a higher number of participants in the more self-determined profile, with corresponding benefits in the psychosocial variables studied in this study.

AUTHOR CONTRIBUTIONS

NB-P: Idea, concept, and design. DM-S: Data collection, analysis and interpretation. JFJ-P: Writing article. AV-V: Literature review and supervision.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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