

School motivation, goal orientation and academic performance in secondary education students

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Background: In the students' school stage can appear many psychological variables that can positively or negatively affect the academic life of the students as well as their learning process. Therefore, the present study aims to explore the relation between school motivation, goal orientation and academic performance in adolescent students.

Methods: This cross-sectional study was performed on adolescent students (N=3512) from 18 public Secondary Education (ESO) centers. The Scale of School Motivation (EME-S), the Perception of Success Questionnaire (POSQ) and academic performance, quantified by each student's mean mark, were instruments used.

Results: The results revealed significant relations among, on the one hand, intrinsic school motivations, task-oriented goal orientations and academic performance in a more adaptive pattern behavior and, on the other hand, relations between extrinsic motivations and ego-oriented goal orientations. The influence of intrinsic motivations, task-oriented goal orientations and low amotivation indices on predicting academic performance was deduced.

Conclusion: The importance of promoting adaptive behaviors that improve adolescent students' academic lives focus on adequate levels of school motivation and task-oriented goal orientations at their education centers was revealed.

Keywords: school motivation, goal orientations, academic performance, students, adolescents

Introduction

While students go through schooling in education centers, many personal and contextual situations take place that strongly affect their development during their learning process, which is when the compulsory Secondary Education process becomes particularly relevant.¹

Thus while at school, some students may not have the necessary strategies and competencies to successfully meet the demands of academic life, so they might take a negative attitude to schooling,² lose interest in their studies,³ have doubts about their own personal capacity in completing them or even feel physically and psychically exhausted.⁴ All this may lead to students' complete lack of motivation, which could reduce their academic performance, and could even lead them to abandon their studies early.^{5,6}

When we refer to the explanations or causes of poor academic performance and/or academic failure, the motivation concept often arises. Motivational models consider motivation a construct to explain the beginning, direction and perseverance of a conduct toward a certain academic goal that centers on inherent questions to the learning process, academic performance and/or the self, social evaluation or

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to even avoid work.⁷ Järvenoja⁸ suggests that motivation results in an active process by which someone continues to do a task to fulfill his/her purposes.

Hence, we center on the academic context in which “school motivation” is understood as a set of beliefs that students hold about their objectives and purposes to reveal why a goal is important for them by deducing an explanation as to why their conduct persists.⁹

School motivation is one of the most studied psychological variables that strongly influences the explanation of many conducts in the education context. The Self-Determination Theory (STD)¹⁰ postulates a macro-theory with how personality develops and functions in social contexts by analyzing the extent to which human conducts are volitive, typical of personal choice or self-determined by assuming that people are active organisms who move toward psychological growth and development, and who make efforts to coherently include their experiences.

Thus, the STD acts as a continuum to cover several degrees of self-determination in conduct, ranging from non-self-determined to the most self-determined.¹¹ Throughout this process, three kinds of basic motivations are covered with their own structure that are regulated internally or externally by the individual: intrinsic motivation, extrinsic motivation and amotivation or, in other words, lack of motivation.

Intrinsic motivation refers to undertaking an activity by the inherent satisfaction from doing so, which does not require any external reinforcement, and results in a multi-dimensional construct in which three types are distinguished: intrinsic motivation to stimulating experiences, when a subject engages in an activity for enjoyment or experiences stimulating and positive feelings from performing it; intrinsic motivation to knowledge, related with the desire to learn new concepts; intrinsic motivation to achievement, characterized by the desire to fulfill or attain objectives. In extrinsic motivation, conduct takes on a meaning because it is directed to a purpose rather than to itself. In it three types are differentiated from a lower to a higher level of self-determination: external extrinsic motivation refers to rewards or avoiding punishments when performing an activity; in identified extrinsic motivation, subjects attribute a personal value to their conduct, which is perceived as their own choice because they consider it suitable and important; introjected extrinsic motivation, where subjects perform their activities to not feel blame or to boost their ego when performing them. Finally, amotivation is lack of motivation for performing a task.

It implies people poorly appraising the task, not controlling a given conduct or even perceiving themselves as being incompetent and ineffective to satisfactorily perform it.

Many studies have related the concepts associated with suitable school motivation in adolescent populations to a close relationship with academic engagement,¹² the perception of self-efficacy in academic tasks,¹³ emotional intelligence,¹⁴ better academic performance,³ adequate personal and social development¹⁵ and generally students feeling more academic happiness.¹⁶

In relation to students’ learning goals, one of the most important cognitive-social theories is “goal orientation”,¹⁷ which has become a widely used reference framework in the psychology of education.¹⁸ It refers to the purposes or reasons that students follow to guide their conduct in academic situations. In areas of achievement, like schools, the basic objective is to demonstrate competence or capacity by following two states of motivational implication: one that is more self-determined and task-oriented and one that is less self-determined and ego-oriented.

Many studies have positively related task-oriented goals to several variables, such as greater persistence, willingness and commitment in school activities,¹⁹ intrinsic motivation to perform tasks,²⁰ greater use and development of coping strategies,²¹ effort and perseverance,²² academic enjoyment,²³ and more physical, psychological and emotional well-being in their academic lives.²⁴ Ego-oriented goals are related with extrinsic motivations when performing academic activities,²⁵ and with the use of deceitful techniques in class.²⁶ They involve lack of commitment to perform tasks and abandoning school,²⁷ anxiety problems²⁸ and, in short, less psychic and emotional well-being for students.²⁹

Finally, students’ “academic performance” is one of the most important dimensions in the teaching-learning process.³⁰ It has been accepted as a multidimensional and relative concept in terms of the various objectives and outcomes expected in education actions.³¹ Despite numerical marks being one of the most widely used and well-known factors in the scientific literature, which forecast greater stability in relation to students’ academic performance,^{32–34} different ways to quantify performance have been used, such as standard exams,³⁵ number of fails,³⁶ having to repeat courses,³⁷ amount of time spent studying³⁸ or even the combination of some of these ways.³⁹

Thus, by interrelating the school motivation, goal orientation and academic performance variables, the scientific literature has provided us with several studies. Some studies consider that task-oriented goals are related with greater academic performance, and with other intrinsic, cognitive and behavioral motivational mediators that are more adaptive in the learning process.^{40,41} Other studies refer to poor-performing students who predominantly possess ego-oriented goals, but this is not a predictor factor of ego.^{34,42} Navas and Sampascual⁴³ pointed out that good-performing students differ from poor-performing ones because their levels of task-oriented goals are higher in the former than ego-oriented goals are. However, the predictive level of ego-oriented goals to explain academic performance has not been ascertained. Indeed, the obtained research results differ, and even go in opposite directions.⁴⁴ Some studies indicate that high prevalences of intrinsic motivation and lack of amotivation relate positively with high levels of academic performance and task-oriented goals; from the opposite perspective, extrinsic motivations and higher levels of amotivation relate with ego-oriented goals, poor academic performance and other less adaptive conducts.^{45,46} Miñano and Castejón (2011) state the importance of modulating success/failure experiences in students' academic lives to define their goal orientations.⁴⁷ This means that the students with good academic performance who hold a positive self-concept are related with intrinsic motivations in performing school activities by showing task-oriented goals. However, poor-performing students are related with holding a negative or low self-concept and being clearly ego-oriented and having purely extrinsic motivations.

Accordingly, and in line with Caballero, Hederich and García,⁴⁸ studies are needed that extend the understanding of and knowledge about the interrelation linking the different psychological constructs of students' academic life, such as school motivation, goal orientations and school performance in the interest of students' personal and academic development in education centers.

Therefore, the objective of the present study is to center on analyzing the relation linking school motivation, goal orientations and academic performance in a sample of adolescent students.

Accordingly, and based on the above-cited objective, three hypotheses are put forward:

(a) The students with high prevalences of intrinsic motivations in their academic lives are positively related to task-oriented goals and to academic performance, and

follow a more adaptive course of actions than (b) those students who obtain higher levels of extrinsic motivation, related positively with ego-oriented goals, and negatively with both academic performance and school motivation in a less adaptive course of actions. Moreover, (c) intrinsic motivation variables, task-oriented goals and amotivation would predict the academic performance of the adolescent students recruited for this study.

Method

Design

This cross-sectional study was performed on adolescent students (N=3512) from 18 public Secondary Education (ESO) centers. The students were selected from each high-school by convenience sampling method. The inclusion criteria were ability to read and communicate in a perfect Spanish language in order to understand and complete the questionnaire. Exclusion criteria included incomplete questionnaires. In addition, the students were not included in the study if they had cognitive disorders. The response rate of the study was 98.97%. Data collected were referred to the period between February 2017 to April 2019.

Evaluation instruments

To collect information and approach the set objective, the following questionnaires were employed:

In order to perceive students' "school motivation", the "Scale of School motivation" (EME-S) was used, which has been adapted to the secondary education context.⁴⁹ This scale comprises 28 items distributed into three main dimensions, with seven subscales and four items each that respond to the reasons why students go to school: intrinsic motivation to "stimulating experiences" ($\alpha=0.73$) (eg, "Because I find school entertaining"); "to knowledge" ($\alpha=0.86$) (eg, "Because I feel pleasure and satisfaction when I learn new things") and "to achievement" ($\alpha=0.88$) (eg, "For the satisfaction I feel when I overcome difficult academic activities"); extrinsic motivation that is "external" ($\alpha=0.75$) (eg, "To find a better job post"), "identified" ($\alpha=0.73$) (eg, "Because it allows me access to the labor market in the field I like the most") and "introjected" ($\alpha=0.82$) (eg, "Because I feel important when I do class tasks well"); finally, "amotivation" ($\alpha=0.82$) (eg, "I don't know, I mean I don't understand why I go to school"). The responses are answered with a Likert-type scale ranging from "I completely disagree" (1) to "I completely agree" (5). The original instrument's

reliability denotes a Cronbach's alpha of 0.80, while it gave a prevalence of 0.82 in our research work.

To approach students' goal orientations, the "Perception of Success Questionnaire" (POSQ) was used, by Roberts, Treasure and Balagué,⁵⁰ and translated to and validated in Spanish by Martínez, Alonso and Moreno.¹¹ The POSQ contains 12 items and measures achievement orientations by two dimensions; "task-oriented goals" (6) (eg, "When I'm in class, I perform to the best of my ability") and "ego-oriented goals" (6) (eg, "When I'm in class, I feel successful when I show the teacher and my classmates that I am the best"). Answers reflect the degree of disagreeing or agreeing with the items on a Likert-type scale ranging from completely disagree (1) to completely agree (5). Several studies in the school context have demonstrated its reliability. It has a Cronbach's alpha of 0.85 for the task subscale and one of 0.82 for the ego subscale,⁵⁰ with 0.86 and 0.83, respectively, in our study.

Finally, in order to learn students' academic performance, their mean mark was obtained (expressed by a whole number and two decimal) of all the subjects in the last 3-monthly period of the academic year, at which time exams are organized, one of the most widely used and best predicting procedures with the greatest stability in relation to students' academic performance.³²⁻³⁴ This variable's reliability was indicated with a Cronbach's alpha of 0.84.

Procedure

To conduct this study, all the participating ESO schools approved it, and students' parents/guardians signed informed consent to participate in it. After reaching an agreement with the Head of Studies beforehand, questionnaires were completed in each classroom at all the schools on a weekday. The nature of the study was explained to all the subjects and their parents/guardians, and participation was voluntary, respected and in line with the Declaration of Helsinki's ethical guidelines and terms.⁵¹ The study protocol was approved by the Ethics Review Committee of Psychology and Sociology Department – University of Zaragoza. All questionnaires were anonymous and students were voluntary. All of them also signed a consent form.

Data analysis

Descriptive statistics were done to know the socio-demographic data of the data and the various studied variables. The correlations among the variables school motivation,

goal orientations and academic performance were made before being processed and analyzed by version 22 of the IBM SPSS Statistical Package. Stepwise multiple regression was used to estimate the prediction of orientation goals and school motivation on performance. Finally, a structural equations model was contemplated with the maximum likelihood method to quantify and validate the causal relations among the three variables, described through the AMOS program, v24. For all the operations, a $p \leq 0.05$ level of significance was taken, with a 95% confidence level.

Results

Below the results obtained with the various studied variables are offered:

Demographics

The study was formed by 3512 students, male (N=1816; 51.07%) and female (N=1696; 48.29%), from 18 public compulsory Secondary Education (ESO) centers from the province of Zaragoza, aged between 12 and 18 years (M=14.55; SD=1.68) (Table 1).

Descriptive variables

As Table 2 indicates, the scores of the several variables were heterogeneous. For the variable school motivation, the intrinsic motivations obtained higher scores than the extrinsic ones, with motivation moving toward stimulating experiences (M=4.02), while introjected extrinsic experiences (M=3.74) were the most pronounced, respectively. Amotivation was the dimension with the lowest

Table 1 Students' gender, age and academic year

		N	Percentage (%)
Gender	Male	1816	51.07
	Female	1696	48.29
Age	12 years	307	17.89
	13 years	293	16.54
	14 years	403	24.02
	15 years	417	23.93
	16 years	269	14.03
	17 years	56	2.71
	18 years	11	0.88
Academic year	ESO Year 1	338	20.09
	ESO Year 2	436	25.63
	ESO Year 3	567	32.11
	ESO Year 4	415	22.17

Table 2 Descriptives of the variables school motivation, goal orientation and academic performance

		Mean	SD	α
School motivation	Intrinsic to stimulating experiences	4.02	0.69	0.73
	Intrinsic to knowledge	3.80	0.79	0.86
	Intrinsic to achievement	3.91	0.74	0.88
	Extrinsic, external	2.50	0.89	0.75
	Extrinsic, identified	3.53	0.83	0.73
	Extrinsic, introjected	3.74	0.68	0.82
	Amotivation	1.74	0.76	0.82
Goal orientations	Task	4.28	0.58	0.86
	Ego	3.24	0.96	0.83
Academic performance	Mean mark	6.33	1.45	0.84

prevalence ($M=1.74$). Task-oriented goals predominated the goal orientations ($M=4.28$) more than the ego-oriented ones did ($M=3.24$). Finally, mean academic performance was 6.33.

Arriba: nuestra interpretación

Relation linking school motivation, goal orientations and academic performance

When the variables school motivation, goal orientations and academic performance were analyzed, significant correlations appeared among several of them (see Table 3).

When the variable school motivation was analyzed, significant correlations were observed among the first six (intrinsic motivation to stimulating experiences, knowledge and achievement, external, identified and introjected extrinsic motivation). Prevalences were higher among the first three intrinsic motivations, where a higher correlation was observed between motivation to knowledge and motivation to achievement (0.717^{**}). Amotivation was inversely related with these last three and positively related with external extrinsic motivation (0.257^{**}).

The two goal orientations correlated with each other (0.246^{**}). Task-oriented goals were related with intrinsic motivations, and were related negatively with amotivation (-0.298^{**}). Ego-oriented goals were related with extrinsic motivations and amotivation (-0.205^{**}).

Finally, academic performance was related positively with all intrinsic and extrinsic motivations, with the former obtaining higher prevalences, and was related negatively with amotivation (-320^{**}). Academic performance correlated with task-oriented goals (383^{**}), but also inversely with ego-oriented goals (100^{*}).

Predicting school motivation and goal orientations on academic performance

To specify the predictive value of motivation and goal orientations about academic performance, multiple regression was used by selecting the dimensions that composed school motivation and goal orientations as predictor variables, and academic performance as a criterion variable. Table 4 shows the last step when the variables that were significant for predicting the likelihood of their influence on academic performance were included.

As we can see, the dimensions of the variable intrinsic motivation to stimulating experiences, knowledge and achievement, and also to external extrinsic motivation, amotivation and task-oriented goals, had a direct and significant effect, explained 60.1% of variance, and indicated the model's suitable fit. Thus, the highest prevalences of the model's motivation dimensions, along with successful task-oriented goals, were associated with higher prevalences for academic performance. Neither identified nor introjected extrinsic motivation was included in the model.

Model of the structural equations among the variables school motivation, goal orientations and academic performance

Finally, Figure 1 offers the result of the structural equations analysis, with the Maximum Likelihood Method, which confirmed the adequacy of the model composed of the constructs considered herein. This indicates a correlation between school motivation and academic performance ($r=0.41$) which, in turn, indicates that high levels of motivation entail high academic performance. Two other correlations were found: one between goal orientations and academic performance ($r=0.22$), and another between

Table 3 Relation linking school motivation, goal orientation and academic performance

	1	2	3	4	5	6	7	8	9
School motivation									
1. Intrinsic to stimulating experiences	1								
2. Intrinsic to knowledge	0.600**	2							
3. Intrinsic to achievement	0.628**	0.717**	3						
4. Extrinsic, external	0.289**	0.374**	0.328**	4					
5. Extrinsic, identified	0.422**	0.459**	0.451**	0.425**	5				
6. Extrinsic, introjected	0.445**	0.337**	0.396**	0.398**	0.486**	6			
7. Amotivation	-0.170**	-0.097*	-0.117**	0.257**	0.026	0.019	7		
Goal orientations									
8. Task	0.410**	0.390**	.444**	0.003	0.017	0.012	-0.298**	8	
9. Ego	0.172**	0.036	0.145**	0.328**	0.127**	0.190**	0.205**	0.246**	9
Academic performance									
10. Mean mark	0.478**	0.437**	0.378**	0.222**	0.322**	0.298**	-0.320**	0.383**	0.100*

Notes: **The correlation is significant at 0.01 (bilateral). *The correlation is significant at 0.05 (bilateral).

school motivation and goal orientations ($r=0.60$). As the different indices proved adequate for the model's fit, it can be stated that the proposed model about the factorial structure among school motivation, goal orientations and academic performance was sustainable: $\chi^2(32) = 63.314$, $p < 0.001$; $\chi^2/df = 1.978$; CFI = 0.96; NFI = 0.95; TLI = 0.94; RMSEA = 0.048, 95% CI (0.034–0.069).

Discussion

This study aimed to analyze the relation linking school motivation, goal orientations and academic performance with a sample of adolescent ESO students in Spain.

The first postulated hypothesis was if those students with high prevalences for intrinsic motivations would be related with both task-oriented goals and academic performance in a more adaptive course of actions.

This hypothesis was totally confirmed; our research results revealed that these variables were closely related. Those students who were more intrinsically motivated were related with task-oriented goals and a satisfactory academic performance.

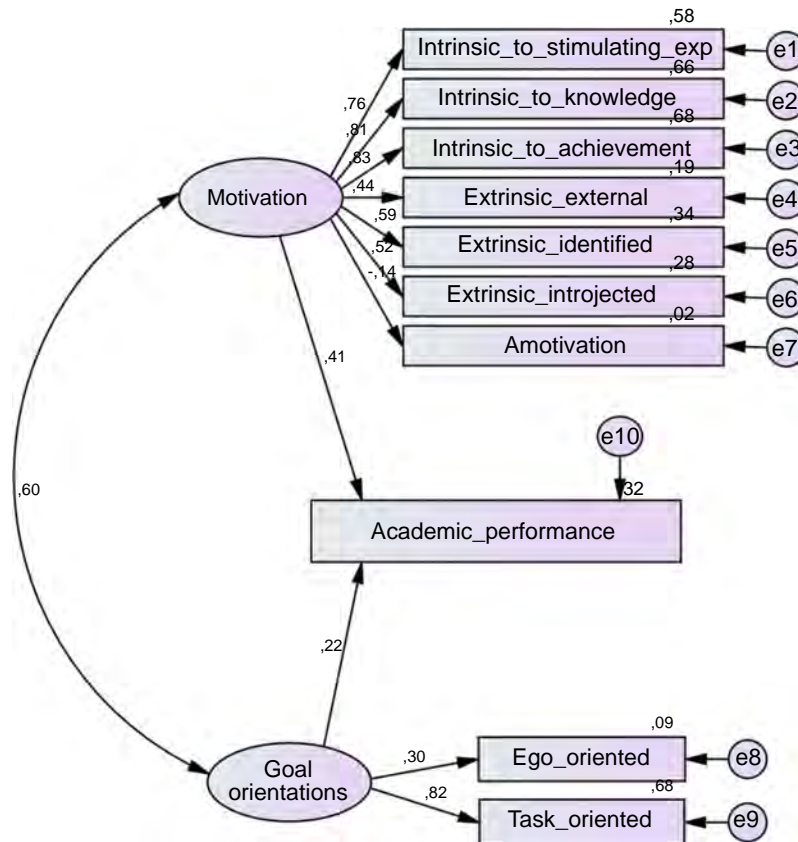
Several studies have also revealed the relation between intrinsic school motivations and task-oriented goals. Barca et al³⁴ found positive relations between intrinsic motives when performing school activities and academic task-oriented goals in a clearly self-determined pattern. Casas et al²⁰ encompassed the two cited variables by including more dedication and entertainment at school. Salavera and Usán²¹ stated that intrinsically motivated students employed better school-coping strategies than extrinsically motivated ones, which led to more adaptive goal orientations. With their sample of Primary and Secondary Education students, Skinner, Furrer, Marchand and Kinderman⁵² found relations between these two variables, which were linked with students' adhesion and commitment with their school, and basically led to better psychological and emotional well-being.²⁴

Other research works include academic performance with variables of the motivational and predominantly intrinsic goal orientations type.

In their sample of Secondary Education adolescent students, Ferriz, Sicilia and Sáenz⁵³ stressed relations between the students who were more intrinsically motivated and task-oriented goals when undertaking school activities, who showed better academic performance. Cuevas, García and Contreras⁵⁴ related motivational task-oriented goals with levels of student satisfaction and enjoyment by deducing the influence of purely intrinsic

Table 4 School motivation and goal orientations as predictors of academic performance

Single step	B	Standard error	R ²	t	Sig.
Constant	1.932	0.248		7.804	0.000
Intrinsic motivation –stimulating experiences	0.232	0.048	0.478	4.634	0.000
Amotivation	–0.256	0.038	0.536	–6.782	0.000
Intrinsic motivation – Knowledge	0.123	0.045	0.568	2.744	0.006
Extrinsic motivation – External	0.116	0.035	0.583	3.292	0.001
Intrinsic motivation – Achievement	0.073	0.038	0.588	1.926	0.049
Goal orientation – Task	0.181	0.049	0.601	3.430	0.001

**Figure 1** Model of the structural equations among the variables motivation, goal orientations and academic performance.

motivations on academic performance for Secondary Education. Covington⁵⁵ indicated a relation with high prevalences in task-oriented goals and high levels of academic performance.

So, a more adaptive course of actions among intrinsic motivation variables, task-oriented goals and academic performance emerged.

Our second research hypothesis considered a positive relation with higher levels of extrinsic motivation with ego-oriented goals and, in turn, a negative relation with adolescent students' academic performance in a more non-adaptive

course of actions. This hypothesis was partly confirmed: our research results indicated a relation between extrinsic motivations and ego-oriented goals in a more non-adaptive course of actions, but did not indicate an inverse relation between them and academic performance.

A consensus appears to have been reached in the scientific literature about assuming a relation between extrinsic motivations and ego-oriented goals, which are associated with more non-adaptive conducts. DeFreese and Smith²⁶ reported a close relation between goal orientations and extrinsic school motives that led to adolescent students being less committed

to school and less dedicated to school tasks. Downey, Rosengren and Donovan²⁷ included the factor academic engagement and task-solving strategies in a non-adaptive course of actions, which also resulted in students being less committed. Bresó, Schaufeli and Salanova¹³ indicated a relation between both variables with academic burnout syndrome appearing when assuming that less motivated students with clearly ego-oriented goals were reflected by their physical/emotional exhaustion and cynicism. As Musitu, Giménez and Murgui pointed out,⁶ some purely extrinsic motivations could act as a factor to trigger students' failure and/or to students abandoning school.

Moreover, several studies have revealed a relation between extrinsic school motivations and ego-oriented goals with academic performance. Some have found a direct relation with predominantly extrinsic motivations associated with worse academic performance. Baena, Granero, Pérez, Bracho and Sánchez⁵⁶ reported that extrinsically motivated students were related with worse academic performance. Caballero, Palacio and Hederich⁵⁷ associated some predominantly extrinsic goal orientations with poor academic performance. Salanova et al³ indicated an unmistakable relation with ego-oriented goals and extrinsic motivations with emotional exhaustion and cynicism dimensions, which characterized academic burnout along with poor academic performance.

Other works have found no relation between academic performance and these predominantly extrinsic motivational variables. Tsouloupas, Carson, Matthews, Grawitch and Barber⁵⁸ indicated relations between extrinsic motivations and ego-oriented goals, but not as an influential factor that leads to worse academic performance. McCollum and Kajs⁹ observed no links with these motivations and goal orientations with students' performance. Finally, Delgado, Inglés, García, Castejón and Valle⁵⁹ referred to other relevant variables, such as age or gender, to determine adolescents' academic performance rather than their extrinsic motivations.

Following these studies, the described variables would not contradictively act dichotomically with one another, but would form part of the same conduct pattern. This would imply that those students who presented better school performance would not necessarily have to be associated with only predominantly intrinsic motivations. This could be due to some students being intrinsically and extrinsically motivated at the same time, and they use their levels according to task demands and/or personal variables that act orthogonally.⁶⁰

A more non-adaptive course of actions was corroborated between extrinsic motivations and ego-oriented goals, but no relation between both with worse academic performance was found.

Finally, our third study hypothesis was about possibly predicting intrinsic motivations, task-oriented goals and amotivation about adolescent students' academic performance. This hypothesis was almost completely confirmed; all the intrinsic motivations (stimulating experiences, knowledge and achievement), with task-oriented goals and amotivation, predicted students' academic performance, along with external extrinsic motivation, whose inclusion in the model constituted its predictor variables.

The scientific literature does not contain many studies that directly include the results found herein. Cuevas, García and Contreras⁵⁴ predicted purely intrinsic motivations, along with intrinsic levels of satisfaction, about the academic performance of adolescent ESO students. Caballero, González and Palacio⁶¹ established task-oriented goals, plus certain levels of engagement, eg, efficiency and vigor, as predictors of academic performance. Méndez, Fernández, Cecchini and González⁶² reflected how goal orientations predicted academic performance along with other adaptive factors, such as showing more persistence in learning, or even interacting better with classmates and social integration. Bresó, Schaufeli and Salanova (2011) defined a more self-determined pattern of conduct in which the academic efficacy dimension, along with intrinsic motivations, positively predicted academic performance. Finally, Navas and Sampascual⁴³ indicated a pattern of conduct characterized by intrinsic motivations and other socio-demographic variables, like gender and academic year, as predictors of academic performance.

All these reasons reveal the incidence that the variables school motivation and goal orientations can have on adolescent students' academic performance which, along with other personal and contextual situations, formed a compendium of psychological variables that affect the future of students' schooling by conditioning their performance and adherence to school. Hence, it is fundamental to attend to them in order to allow students to optimally undertake their academic lives.^{3,12,13}

Study limitations

The limitations of the present study might lie in its cross-section design and by collecting data at a given spatial-temporal point. Moreover, the surveyed ESO centers

responded randomly to being included in the study, and no uniform sample was formed to include all the districts or areas of the city, which could affect the possible differences in their socio-economic levels, levels of education or other social matters. In turn, the school motivation, goal orientations and academic performance indices may vary from one academic year to the next, and even during the same academic year, as far as students' personal and contextual circumstances in their group/class are concerned. In addition, there are other factors such as temperament, psychopathology, executive functioning, parent and peer relationships that can interfere with the variables studied uncontrolled the possible effects.

Future prospects

As future prospects, it would be interesting to investigate the multidimensional concept of academic performance and its impact on other psychological variables. It would also be interesting to use longitudinal models to evaluate the evolution of the constructs studied over a longer time period. It would be relevant to study other education stages, such as Primary Education or Higher Secondary Education, as well as other stages of students' academic lives, such as under- and post-graduate degrees, and even university life. Finally, it would be relevant to study other variables related to those studied herein, such as gender, school type and other socio-cultural aspects.

Practical implications

This work may involve some practical implications that could lead to didactic strategies that can be used with students by means of teachers or career advisors from early ages, which address self-determined conducts, such as promoting effort, interest and motivation to study so that students feel efficient for performing academic tasks, which would favor greater persistence and dedication, and could act as a factor to prevent poor academic performance.

Moreover, intervention programs led by professionals in the area with administration and/or the education centers themselves to work with their adolescents on the above-mentioned variables could contribute to students' all-round and educational training, and to lower the number of students who abandon school early.

Finally, our research results encourage us to continue investigating and seeking new questions to help us define methodologies by encountering answers to allow us to

advance in constructing adolescent students' socio-affective development.

Disclosure

The authors report no conflicts of interest in this work.

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