Multiple intelligences, emotions, and creativity in first year spanish undergraduate students

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Abstract

Introduction: This research points in the direction of the relevance and usefulness of designing and applying interventions focused on improving intelligence, giving priority to emotional and creative aspects, to promote optimal comprehensive performance in students. There is a pronounced need to develop competent people, both cognitively and socio-emotionally, to function effectively in an ever-changing society. **Objective:** The purpose was to evaluate and compare the level of self-efficacy perceived by the participants with respect to their multiple intelligences, their emotional intelligence, their creativity and their academic performance. **Method:** The sample is made up of 435 first-year university students. The research design was cross-sectional predictive. **Results:** Relationships were found between the analyzed variables, as well as differences based on the sex of the participants. Regression analyzes show how linguistic and logical-mathematical intelligences are self-perceived predictors of students' academic performance. Discussion: A positive relationship between the different social and emotional competencies is detected, as well as their importance for the optimal performance of the students.

Keywords: creativity, higher education, school performance, emotional intelligence, multiple intelligences

Inteligencias múltiples, emociones y creatividad en estudiantes universitarios españoles de primer curso

Resumen

Introducción: Esta investigación apunta en la dirección de la pertinencia y utilidad de diseñar y aplicar intervenciones focalizadas en la mejora de las inteligencias, atendiendo de manera prioritaria a los aspectos emocionales y creativos, para fomentar un rendimiento integral óptimo en los estudiantes. Existe una pronunciada necesidad de formar a personas competentes, tanto cognitiva como socioemocionalmente, para que se desenvuelvan de manera eficaz en una sociedad en constante cambio. **Objetivo:** El propósito fue evaluar y comparar el nivel de autoeficacia que perciben los participantes con respecto a sus inteligencias múltiples, su inteligencia emocional, su creatividad y su rendimiento académico. **Método:** La muestra se compone de 435 estudiantes universitarios de primer curso. El diseño de investigación fue predictivo

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transversal. **Resultados:** Se hallaron relaciones entre las variables analizadas, así como diferencias en función del sexo de los participantes. Los análisis de regresión muestran cómo las inteligencias lingüística y la lógico-matemática autopercibidas son predictores del rendimiento académico de los estudiantes. **Discusión:** Se detecta una relación positiva entre las diferentes competencias sociales y emocionales, así como la importancia de las mismas para el óptimo rendimiento de los estudiantes.

Palabras clave: creatividad, enseñanza superior, rendimiento escolar, inteligencia emocional, inteligencias múltiples

Introduction

Today's society demands competencies that enable individuals to perform effectively in unforeseen and uncertain situations. This is one of the challenges universities faces nowadays: training competent people prepared to live in a changing and demanding world. Having a high IQ is no guarantee of achieving educational and occupational success (Extremera & Fernández Berrocal, 2006). Certainly, this does not mean that intelligence is not a factor to be considered, but it is understood as a compendium of different capacities that enable students to live adequately in society.

Likewise, academic performance must be approached holistically, considering all the variables that influence its evolution. Therefore, along with cognitive processes, social and emotional aspects must be considered and encouraged. All of them are interrelated, although they are not the same, and should be worked on from the initial levels and throughout all educational stages. Gardner (1999) understands intelligence as the way to solve life problems—both adaptively and differently—producing new results, and thus transforming knowledge.

This study is developed within this framework of thought, in which the background variables of people's performance are analyzed from a comprehensive and contextualized viewpoint.

Consequently, in the current social and educational context, people must be socially and emotionally competent and must behave creatively in the different situations they face. Intelligent people must be effective in their daily life, and this implies that they should have cognitive as well as social and emotional competencies—only then will they be creative individuals (Sternberg et al., 2001).

Intelligence is a construct whose study and analysis have always aroused great interest within the psychological and educational field given its importance and influence on human behavior. Despite this, and even though today there is still no unequivocal and consensual definition of the concept of intelligence (Pérez & Castejón, 2007), what research and theories of recent decades do seem to indicate is that it is a multifactorial construct and, therefore, it is composed of intelligences of different kinds, which provide the person with abilities to act in different contexts of their life. As early as 1983, Gardner introduced his theory defining multiple intelligences, in which intelligence is considered as a set of diverse types of skills (linguistic, logical-mathematical, spatial, musical, kinesthetic, intrapersonal, interpersonal, and naturalistic intelligences). We all have these intelligences, but each one of them is promoted to a greater or lesser degree in each individual, depending on their experiences and learning; hence, all of them should be fostered in educational centers and at all levels (Amstrong, 2006; González Treviño et al., 2020; Guzmán & Castro, 2005). Multiple works arise from this context (Delgado, 2013; Márquez et al., 2016; Vivas, 2015), which focus on different areas and populations. Several studies at high school and university levels, such as the research by Durán Aponte et al. (2014), Pérez and Cupani (2008), or Pérez et al. (2005), have found that the eight types of intelligences defined by Gardner explain an important part of students' performance. Despite this, there are still gaps in this regard in current education, since in many cases more traditional methodologies are used to promote students' intelligences (González, 2014).

Emotional Intelligence

The analysis of emotional intelligence has aroused great interest in recent times due to its influence on human behavior, as it is related to thoughts and, hence, to performance (Brouzos et al., 2014; Pérez & Castejón, 2007; Pulido & Herrera, 2017). Goleman (1995) considers emotional intelligence as an ability that is closely linked to success and that, therefore, favors the adaptation of individuals to the society in which they live (Extremera & Fernández Berrocal, 2006). Another prominent author, Bisquerra (2011), defines it as an ability that allows people to be aware and, therefore, to autonomously self-regulate emotions. This author points to knowledge, regulation, autonomy, and social and life skills as essential competencies.

Mayer and Salovey (2007) developed their own model highlighting that it is composed of four interrelated domains: perception, facilitation, understanding, and emotional regulation. Following this model, recent studies such as the one developed with university students by González and Pardo (2018), have attempted to define different student profiles based on their emotional competence. Various studies, carried out in different countries and educational levels (Ahmed et al., 2019; Gil Olarte et al., 2005; Herrera et al., 2020; Jan & Anwar, 2019; Parker et al, 2004; Pérez & Castejón, 2007; Petrides et al., 2004), and a recent meta-analysis (Sánchez-Álvarez et al., 2020) have found a positive relationship between emotional competence and academic success. However, there are other studies that have not detected such a clear correlation (Barchard, 2003; Bastian et al., 2005), although they have found a relationship between emotional intelligence and other relevant aspects such as life satisfaction or emotional control. Consequently, the actual contribution of the aspects involved in the competence of being "emotionally intelligent" is still being studied through rigorous works that control for other variables that could be affecting it, such as the development of other types of intelligence, creativity, or performance (Chico, 1999; Van der Zee et al., 2002).

The Creative Process

Creativity is considered an essential factor for the evolution of the individual and his or her development within society since it enables one to solve the different and complicated situations one is forced to face. Some authors even propose that its assessment and analysis is a key point for human progress. More concretely, it can be said that the creative capacity implies favoring, through explicit teaching, the elaboration of unusual results (Runco & Jaeger, 2012). Within the study of creativity, it is necessary to consider the three spheres involved: person, context, and creative process. Thinking creatively means to think in an innovative, adaptive, and relative way to find solutions to all the challenges we face (Pizarro et al., 2006).

In the field of regular teaching, creativity has not received much attention (Esquivias, 2004), despite the fact that expert researchers, such as Amabile (1983), had already been interested in the role of this competence in learning since ancient times. It is encouraging that, in recent years, more and more studies are being published that follow the thread of these pioneering authors and gradually promote educational changes. Based on different authors, it can be said that the creative capacity exists in everyone, yet, as with multiple intelligences, it evolves more or less based on the experiences and the instruction received, both formal and non-formal (Vázquez et al., 2019). These authors highlight the value of training university students to develop their creativity so they are competent professionals in their near future.

Regarding studies carried out recently on the association between the creative process and current performance, it seems that, although with certain ambiguities in some cases, the existing trend (Bermejo et al., 2014; Snyder et al., 2019; Zhang et al., 2018) supports the idea that there is a linked and close relationship between creativity and performance. We can say this from a global view but also at the level of specific competencies and disciplines (Bermejo et al., 2014; Hu & Adey, 2002; Mahama et al., 2019). As for the intervention

programs that have been carried out so far, there are some that have focused precisely on improving the creative processes of students at both initial and higher educational levels, but there is always a greater tendency to carry them out with samples of initial-level students and not so much in high school and university (Bermejo et al., 2014). As already seen in the case of multiple intelligences, this is a process that develops and improves with experience and continuous practice (Méndez, 2006). Training focused on the development of creativity and developed at all educational levels will favor problem solving by students in an original and flexible way and, therefore, promote adequate and integral performance (Prieto et al., 2002).

Social-Emotional Competencies: Relationships and Divergences

The study of emotional intelligence—together with other types of intelligences—and creativity is a key point due to the repercussion that these seem to have on people's behavior and lives. Multiple studies conducted in different levels and countries, and with wide-ranging samples of students, show the existence of interconnections between the different types of intelligences, emotions, and creativity (Brouzos et al., 2014; Hidalgo-Fuentes et al., 2018; Pulido & Herrera, 2017). This generates the need to consider these variables as essential in people's education, promoting their development and evolution in an integrated manner. In this way, the competencies necessary to solve problems and achieve an integral and adequate performance will be enhanced (Fernando et al., 2005; Gardner, 2010).

While it is true that the analysis of the relationships between the above variables has been a focus of attention, there are also recent studies that pinpoint research of the differences that may exist between multiple intelligences, emotional competence, and creativity. Interesting results have been found in this field of research, which should be considered when studying these competencies. Thus, variables such as gender and age could influence the degree of intelligences, emotional competence, and creativity of individuals, with the repercussions that this could have on human behavior throughout the life cycle. As we have been saying, these studies are recent and at present it is not possible to draw definitive and generalizable conclusions since, at some points, they have reached different or even opposite results. The following are examples of these studies on the research of the differences in creativity, multiple intelligences, and emotional intelligence according to gender and/or age.

Therefore, in the analysis of creativity, several studies (Elisondo & Donolo, 2011; Sayed & Mohamed, 2013) have found no differences in creative processes based on gender. These results are not conclusive, as other studies have found differences in creativity both in favor of males (Tsai, 2013) and females (Hemdan & Kazem, 2019). On the other hand, Bermejo et al. (2014) found differences in students from different university programs; they found that students in their final years were less creative than those in early study periods. This seems to point to the fact that the level of creativity may decline with age after reaching a high point in adolescence (Smith & Carlsson, 1983).

Regarding multiple intelligences, there are studies in which differences are found in the functioning of multiple intelligences in men and women, in favor of the latter, both in the degree of interpersonal intelligence and musical intelligence (Llor et al., 2012), as well as linguistic intelligence (Sener & Çokçaliskan, 2018). Nevertheless, studies have reported that it is men who possess a higher level of logical-mathematical intelligence (Llor et al., 2012; Szymanowicz & Furnham, 2013). As for Muglia (2009), she has found discrepancies in the cognitive styles of people of different ages and gender, which is closely related to their multiple intelligences.

Regarding the differences in emotional intelligence between men and women, dissimilar results are found; while some studies find no differences in emotional intelligence on the basis of gender (Aradilla-Herrero et al., 2014; Cazalla Luna & Molero, 2016; Hidalgo Fuentes et al., 2021), other authors have found differences between

men and women in some of the emotional intelligence factors (Extremera et al., 2007; Fischer et al., 2018; Gomez Baya et al., 2017; Palomino & Almenara, 2019). Therefore, what is presented here reveals the existing ambiguity regarding the existence or not of differences in intelligence, emotional competence, and creativity based on age, educational level, and gender.

According to the above review of the theoretical and empirical background, a progressive consensus has emerged from the conclusions derived from different stakeholders in the educational field. This consensus has been generated on the premise that a comprehensive teaching and learning process requires, in addition to training at the intellectual level, instruction explicitly focused on optimizing the different types of intelligences, including emotional intelligence, and creative processes, in a global and cross-sectional manner throughout the person's entire life cycle. This way, they will be aided when facing the demands of the changing world in which we live. With these ideas in mind, this study was launched to evaluate, identify relationships, and compare the level of self-efficacy perceived by first-year students in different programs with respect to their multiple intelligences, their emotional intelligence, their creativity, and their academic performance. Following this general purpose, a series of more specific objectives will be pursued as well:

- To characterize the students in the sample in terms of academic performance, emotional intelligence, multiple intelligences, and creativity.
- To analyze whether there are statistically significant differences between men and women in the variables included in the study.
- To describe the relationship between emotional intelligence, multiple intelligences, creativity, and academic performance in men and women.
- To identify the percentage of variance explained in terms of academic performance based on the predictors included in the study (emotional intelligence, multiple intelligences, and creativity).

Method

Participants
The tests were administered to a total of 435 students enrolled in the first year of the programs of Psychology, Speech Therapy, Social Work, and Teaching of Universitat de València, selected through a non-probabilistic incidental sampling. The sample was predominantly female (84.4%) with ages ranging between 17 and 50 years (M=19.76; SD=4.13).

Instruments
Ad hoc questionnaire for the collection of sociodemographic data (age and gender), year and average university entrance score out of 10 points (measurement used as an indicator of the participants' academic performance).

Self-Efficacy Inventory for Multiple Intelligences-Revised (SIMI-R, Pérez & Cupani, 2008).
The test consists of 48 items in which the confidence of the subjects to perform different activities related to the eight types of intelligence proposed by Gardner (1999) is assessed through a ten-point Likert-type scale. This test has reliability coefficients for each of its eight scales ranging from α=.84 to α=.94. Evidence of incremental validity of the SIMI-R has been obtained in relation to career choice goals, controlling for the effects of the Career Interests Questionnaire (Cupani & Pérez, 2006); and academic performance, controlling for the effects of the DAT-5 Differential Aptitude Test (Pérez et al., 2005).

Creative Intelligence Test (CREA, Corbalán et al., 2003).
It is a cognitive measurement of creativity, which is reported through the ability of individuals to generate questions about a drawing for a limited time. Each question formulated by the subjects suggests the activation of a new cognitive schema, which in turn is used as an indirect measure of creativity (Donolo & Elisondo, 2007). The test has three different drawings: A and B, for adolescent and adult subjects; and C, for

children. In this research, drawing B was chosen. The application time of the test is four minutes. The direct score is transformed into a centile score which is interpreted according to the test scale as low (1 to 25), medium (26 to 74), or high (75 to 99) creativity. The measurement shows convergent validity with the Guilford Creativity Battery; as well as discriminant validity with intelligence tests aimed at both children and adults. Reliability, analyzed by means of parallel forms, reaches α=.87.

Trait Meta Mood Scale (TMMS-24; Salovey et al., 1995).

It is comprised of three dimensions: attention to feelings, the degree to which subjects believe they are paying attention to their emotional states; emotional clarity, which assesses the competence to adequately identify and understand one's own emotions; and emotional repair, which assesses the subjects' ability to reduce negative emotions and maintain positive emotions. The Spanish adaptation (Fernández-Berrocal et al., 2004) has 24 items on a five-point Likert scale (8 items for each of the three dimensions) and has the following reliability coefficients: α=.86 for the attention and repair scales, and α=.90 for the clarity scale. In terms of validity, the three scales of the TMMS 24 correlate in the expected directions with the Beck Depression Inventory, the Satisfaction with Life Scale, and the Ruminative Responses Scale.

Procedures

The students were informed of the objectives and scope of the study, as well as its completely voluntary and anonymous nature. The tests were administered collectively in the classroom during academic hours in a single session with no time limit (except for the CREA), strictly following the instructions for each test. Students did not receive incentives for their participation.

Data Analysis

Data analysis was performed using the *IBM SPSS Statistics v.24* statistical package. Descriptive analysis (mean and standard deviation), analysis of differences between means of two independent groups using Student's t-test and Cohen's d to calculate the effect size (d=0.2 small effect size, d=0.5 medium effect size, and d=0.8 high effect size) were performed. To analyze the existence of relationships between the variables, the Pearson's bivariate linear correlation coefficient was obtained; this coefficient ranges between ± 1. Negative values different from zero indicate an inverse linear relationship; positive values different from zero show a direct linear relationship; and values close to zero indicate that there is no linear relationship between the variables.

To determine the percentage of variance in academic performance explained by the scores obtained in the creativity, multiple intelligences, and emotional intelligence tests, a linear multiple regression analysis was performed after checking compliance with the corresponding assumptions. The assumption of normality was evaluated using the Kolmogórov Smirnov (KS) test; homoscedasticity was assessed using scatter plots; for the absence of correlation, the Durwin Watson statistic was used, in which its value ranges between 0-4, and *D* values between 1.5 and 2.5 report the absence of correlation; and the assumption of multicollinearity was evaluated using variance inflation values and tolerance indices.

Results

Table 1 presents the descriptive statistics of the sample, both overall and according to the participants' gender, as well as the results of Student's *t*-tests and Cohen's *d*-tests to assess the existence of significant differences between men and women in all the variables under study and the effect size, respectively.In the three variables of emotional intelligence (attention to feelings, emotional clarity, and emotional repair), in the logical-mathematical and kinesthetic-bodily intelligences, and in academic performance, statistically significant differences were found between men and women. While in attention to feelings and academic performance women

score significantly higher than men, in the other variables the differences are in favor of males. The effect size is small in all the variables in which significant differences were found, except for the logical-mathematical and kinesthetic-bodily intelligences, in which the effect size is moderate (*d*=.60 and *d*=.74, respectively).

The Pearson correlations are shown in Table 2. As can be seen, academic performance presents a statistically significant and positive relationship with linguistic, logical-mathematical, spatial, and interpersonal intelligences. It also has a statistically significant relationship with creativity. That is to say, students with higher scores in the linguistic, logical-mathematical, spatial, and interpersonal intelligences obtain higher academic performance; similarly, students with higher scores in the creativity test also achieve higher academic performance.

Regarding the dimensions of self-perceived emotional intelligence, the dimensions of emotional clarity, and emotional repair achieve statistically significant and positive relationships with intrapersonal, linguistic,

logical-mathematical, spatial, interpersonal, and kinesthetic-bodily intelligences. The correlations are higher for emotional clarity, which has the highest relationship with intrapersonal intelligence. For its part, creativity maintains positive correlations with all multiple intelligences, except for kinesthetic-bodily and intrapersonal.

Given that there are differences in certain variables based on gender, Table 3 shows the Pearson correlations for both male and female students. In relation to academic performance, the main differences according to gender are that in the case of males there is a positive relationship between creativity and grades; while in the case of females, it is the logical-mathematical, spatial, and naturalistic intelligences that have statistically significant correlations, in all cases with a positive sign. Linguistic intelligence is related to performance in both genders.

Finally, after assuming normality based on the Kolmogorov-Smirnov test on the standardized residuals (value of the KS statistic=.031; p=.20), and homoscedasticity by means of visual inspection

Table 1

Descriptive Statistics and Student's t-Test and Cohen's d-Test According to Gender

	Total		Men		Women			
	M	**DT**	**M**	**DT**	**M**	**DT**	**t**	**d**
Academic performance	*7.70*	*.87*	*7.46*	*.80*	*7.75*	*.88*	*-2.26**	*-.33*
Attention to feelings	*28.74*	*6.11*	*27.15*	*6.67*	*29.04*	*5.97*	*-2.36**	*-.31*
Emotional clarity	*25.52*	*5.84*	*27.54*	*5.50*	*25.15*	*5.83*	*3.11***	*.41*
Emotional repair	*25.56*	*6.21*	*27.56*	*6.95*	*25.19*	*6.00*	*2.91***	*.38*
Linguistic intelligence	*7.47*	*1.4*	*7.59*	*1.19*	*7.45*	*1.44*	*.73*	*.10*
Logical-mathematical intelligence	*5.54*	*2.09*	*6.58*	*2.00*	*5.35*	*2.05*	*4.54****	*.60*
Spatial intelligence	*4.68*	*2.35*	*4.87*	*2.33*	*4.64*	*2.36*	*.73*	*.10*
Musical intelligence	*4.03*	*2.66*	*4.54*	*2.96*	*3.93*	*2.59*	*1.60*	*.23*
Interpersonal intelligence	*7.82*	*1.22*	*7.98*	*1.16*	*7.79*	*1.23*	*1.15*	*.15*
Kinesthetic-bodily intelligence	*6.33*	*1.93*	*7.50*	*1.72*	*6.11*	*1.89*	*5.63****	*.74*
Intrapersonal intelligence	*7.30*	*1.38*	*7.57*	*1.27*	*7.25*	*1.39*	*1.76*	*.23*
Naturalist intelligence	*4.98*	*1.74*	*5.23*	*1.87*	*4.93*	*1.72*	*1.30*	*.17*
Creativity	*27.80*	*19.92*	*25.51*	*19.75*	*28.23*	*19.95*	*-1.01*	*-.14*

* p <.05; ** p <.01; *** p <.001

of the scatter plot of the standardized predicted values versus the standardized residuals, a linear regression analysis was performed taking the students' academic performance as a dependent variable and those that had shown a significant correlation with said performance were considered independent variables.

Table 4 shows the results of this analysis, which reflects how the linguistic (β=.285; p<.001) and logical-mathematical (β=.159; p<.001) intelligences are the variables that have a significant relationship with academic performance, which explains the 13% of the total variance of this variable. Thus, those individuals who perceive themselves as more competent in these two areas in turn show better academic performance. The Durbin-Watson value was D =1.65, confirming the absence of autocorrelation. To rule out multicollinearity, variance inflation values and tolerance indexes were calculated and found to be within the recommended ranges, with variance inflation values below 10 and tolerance indexes above .10.

Discussion

The general objective of this research study was to evaluate, relate, and compare the degree of multiple intelligences, creativity, and emotional intelligence in university students enrolled in

Table 2
Bivariate Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. Academic performance	-											
2. Emotional attention	.032	-										
3. Emotional clarity	.017	.200**	-									
4. Emotional repair	.040	.016	.339**	-								
5. Linguistic intelligence	.299**	.178**	.220**	.174**	-							
6. Logical-mathematical intelligence	.194**	-.051	.132**	.104*	.125**	-						
7. Spatial intelligence	.133*	-.006	.131**	.138**	.154**	.272**	-					
8. Musical intelligence	.047	.033	.089	.092	.086	.113*	.117*	-				
9. Interpersonal intelligence	.121*	.137**	.341**	.224**	.329**	.024	.176**	.055	-			
10. Kinesthetic-bodily intelligence		.025	.160**	.266**	.210**	.116*	.191**	.120*	.336**	-		
11. Intrapersonal intelligence		.191**	.646**	.348**	.346**	.048	.115*	.039	.434**	.281**	-	
12. Naturalist intelligence	.095	.071	.214**	.179**	.235**	.204**	.196**	.258**	.198**	.306**	.258**	-
13. Creativity	.125*	-.028	.017	.084	.143**	.099*	.164**	.162**	.113*	-.005	.018	.130**

**. Correlation is significant at the 0.01 level (bilateral).
*. The correlation is significant at the 0.05 level (bilateral).

Table 3

Bivariate Correlations Based on Gender

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Academic performance-	-	.018	.049	.045	.285**	.250**	.173**	.037	.116	.081	.063	.140*	.081
2. Emotional attention	-.005	-	.240**	.010	.193**	.026	-.011	.052	.152**	.087	.193**	.096	-.028
3. Emotional clarity	-.019	.097	-	.314**	.221**	.101	.103*	.122*	.337**	.145**	.649**	.224**	.017
4. Emotional repair	.109	.124	.380**	-	.202**	.106*	.131*	.102	.231**	.254**	.340**	.193**	.096
5. Linguistic intelligence	.396**	.136	.193	.006	-	.131*	.167**	.046	.328**	.232**	.368**	.275**	.103
6. Logical-mathematical intelligence.	.142	-,297*	.128	-.063	.043	-	.301**	.097	.008	.051	.034	.168**	.097
7. Spatial intelligence	-.073	.046	.280*	.152	.064	.100	-	.159**	.164**	.228**	.116*	.200**	.194**
8. Musical intelligence	.203	.000	-.154	-.001	.304*	.099	-.099	-	0,076	0,076	0,070	,268**	.171**
9. Interpersonal intelligence		.109	.338**	.162	.325**	.038	.235	-.079	-	.379**	.450**	.242**	.110*
10. Kinesthetic-bodily intelligence	.157	-.108	.019	.174	.034	.141	-.046	.241*	.047	-	.268**	.318**	.001
11. Intrapersonal intelligence		.259*	.606**	.354**	.175	.012	.088	-.164	.314**	.280*	-	.260**	.006
12. Naturalist intelligence	-.047	.004	.120	.085	-.005	.340**	.165	.197	-.055	.212	.225	-	.145**
13. Creativity	.343**	-.063	.073	.069	.425**	.189	.000	.156	.152	.049	.111	.077	

Nota. *Below the diagonal are the results for the male sample; above the diagonal are the results for the female sample.*
**. Correlation is significant at the 0.01 level (bilateral).
*. The correlation is significant at the 0.05 level (bilateral).

Table 4

Regression Coefficients for Academic Performance

Variables	B	β	t	p
General constant	5.611		15.361	<.001
Linguistic intelligence	.197	.285	4.899	<.001
Logical-mathematical intelligence	.070	.159	2.906	<.001
Spatial intelligence	.013	.036	.644	.520
Interpersonal intelligence	-.013	-.018	-.310	.757
Creativity	.019	.078	1.457	.146

R=.360 R2=.130 F=9.439 p=<.001

the first year of the Psychology, Speech Therapy, Teaching, and Social Work programs, as well as the relationship of these variables with each other and with academic performance.

The analyses conducted on the answers given by the students in the tests administered have revealed that there are relationships between the different variables analyzed, as well as differences in terms of the participants' gender.

More specifically, regarding the first specific objective proposed, the research sample obtained adequate levels in all the variables analyzed. At the level of academic performance, in general, the students obtained an average score of 7.70, equivalent to a "B." The students have medium-low levels of creativity. This data could have an important repercussion at the educational level since it is associated with the ability to solve the problems faced by students in an innovative, adaptive, and relative way (Pizarro et al., 2006), hence there is a latent need to promote this ability in students from the first years, which seems not to have been fully acquired or internalized. Students also obtained average scores in most multiple intelligences, though the level of confidence of the subjects in the sample is higher when it comes to performing correctly those activities related to interpersonal, linguistic, and intrapersonal intelligences. This finding, on the one hand, seems coherent considering that these are students from study programs that are closely related to social, emotional, and linguistic competencies (Delgado, 2013; Márquez et al., 2016; Vivas, 2015). However, on the other hand, it reveals the need to foster the rest of the multiple intelligences that are less developed in students in order to train them more comprehensively and promote a positive performance, both in the academic field and in their future professional exercise (Durán-Aponte et al., 2014; Pérez & Cupani, 2008; Pérez et al., 2005). Likewise, both men and women show adequate levels in the three variables of emotional intelligence assessed, which could translate into better adaptation and performance, as seen in the results obtained and which is in line with what has been found by previous authors (Brouzos et al., 2014; Pérez & Castejón, 2007;

Pulido & Herrera, 2017). In conclusion, it can be said that the students have adequate levels in the variables that are considered essential for optimal global performance—academic, personal, and social—as observed from the theoretical review conducted. In that sense, the fact that students have an adequate IQ does not guarantee their academic and professional success if it is not accompanied by other skills that allow them to perform effectively in society (Extremera & Fernández-Berrocal, 2006).

In order to achieve the study's second objective, comparisons were made according to the participants' gender, which concluded that females have, compared to males, higher scores in academic performance and in the attention to feelings variable of emotional intelligence; while males show higher scores in the dimensions of emotional intelligence, emotional clarity, and emotional repair, which are similar results compared to those found in previous studies (Extremera et al., 2007; Gomez-Baya et al., 2017). Males also obtain higher scores in logical mathematical and kinesthetic bodily intelligences; these results are consistent, in part, with what has been found in different works (Llor et al., 2012; Muglia, 2009; Szymanowicz & Furnham, 2013), although this study has not determined that females have higher interpersonal and musical intelligence. Consistent with Elisondo and Donolo (2011) and Sayed and Mohamed (2013), no differences were found in the level of creativity of students based on gender. In addition to being in line with previous studies, these findings are consistent, at least in part, with the idea that women have a higher degree of skills related to the programs analyzed (Psychology, Speech Therapy, Social Work, and Teaching), and that, therefore, they show greater interest in these occupations compared to their male peers.

Regarding the third and last specific objective of the study, relationships were found between different variables. Specifically, Pearson's analysis of bivariate correlations shows how academic performance maintains statistically significant positive correlations with linguistic, logical-mathematical, spatial, and interpersonal

intelligences, as well as with creativity. In turn, the regression analysis carried out shows how the linguistic and logical mathematical intelligences are the main predictors of academic performance, which have also been related to global academic performance in previous works (Ekinci, 2014; Hidalgo-Fuentes et al., 2018; Shahzada & Khan, 2018). Along with spatial intelligence, those are the intelligences that, according to Gardner (1983), are most closely related to self-perceived global intelligence. Although certain research studies have found that emotional intelligence is a predictor of academic performance in first-year university students (Austin et al., 2005; Parker et al., 2004; Sharon & Grinberg, 2018), in this research it is not directly related to academic performance, since the results obtained were more in line with those of Newsome et al. (2000). The relationships found reveal important practical implications in relation to the professor's role, who must work on those intelligences and competencies that are related to a greater extent with performance (linguistic, logical-mathematical, spatial, and interpersonal intelligences and creativity) in those specific programs, and that, as reflected in the first objective, are not too developed in first-year students.

In summary, in general, these data highlight the importance of intervening and promoting appropriate levels of the different intelligences and creativity to favor adequate student performance. As pointed out by these authors (Fernando et al., 2005; Gardner, 2010), socioemotional variables should not be treated as an isolated construct but as fundamental and interrelated components in effective problem solving.

The research described here is not free of limitations. Firstly, the non-probabilistic sampling prevents the generalization of the results, so it would be appropriate to use another probabilistic selection model in future studies. Secondly, the disproportion of the sample in terms of gender, due to the greater number of female students enrolled in the programs analyzed, has not allowed us to to assess and clarify the differences between men and women, thus it would be interesting to increase the number of men in the sample, including students in programs that are more appealing to males. Thirdly, the study sample was, in part, limited, since it included Spanish students and first-year students; it would be interesting to conduct the research with students from different years, programs, and countries to make comparisons and/or generalize the results to a greater extent. Finally, some of the measurements have been taken through self-report tests, so it would be convenient to complement this type of evaluations with ability tests.

As stated in the discussion of the results, the differences between men and women in terms of multiple intelligences and creativity are not yet clear, so this should also be a line of future research.

In the context of the findings found, it seems useful and relevant to analyze and intervene in the socioemotional variables studied with a double objective; on the one hand, to clarify which, how, and at what moment each of them intervenes, and, on the other hand, to be able to design and implement interventions focused on improving students' academic performance.

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