

## Quality indicators in Higher Education: analysis of psychosocial factors of students

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**Abstract:** The objective is to determine the influence of substance consumption, emotional intelligence, and academic context on the two main indicators of the quality of university education: academic achievement and degree of satisfaction. Participants in the study were 202 students (82.2% female; mean age 21.83 years). Data were collected with a questionnaire including six parts: sociodemographic data, substance consumption, levels of satisfaction, academic context, academic performance (calculated by averaging the grades of all exams completed) and the Trait Meta Mood Scale-24 to assess emotional intelligence. Data were analyzed through hierarchical multiple regression. The results reveal that prior achievement and satisfaction with academic advances explain 34.9% of academic achievement. However, the predictor variables of satisfaction are different: academic context (academic course and hours of study), emotional intelligence (clarity and repair), and substance consumption (hallucinogenic substances consumed in the last 12 months). All of them explained 23.1%. It is concluded that the personal determinants of university students should be dealt with transversally in order to affect achievement and satisfaction, thus improving the quality of the university system.

**Keywords:** Academic achievement, University satisfaction, Higher education, Emotional intelligence, Academic context.

## Indicadores de calidad en la Educación Superior: análisis de los factores psicosociales de los estudiantes.

**Resumen:** El objetivo de este trabajo es conocer la influencia que tienen el consumo de sustancias, la inteligencia emocional y el contexto académico sobre los dos principales indicadores de la calidad de la enseñanza universitaria: rendimiento académico y grado de satisfacción. En el estudio participan 202 estudiantes (82.2% mujeres; edad media 21.83 años). Para la recogida de datos se empleó un cuestionario dividido en seis partes: datos sociodemográficos, consumo de sustancias, nivel de satisfacción, contexto académico, rendimiento académico (calculando la nota media de los exámenes presentados) y el TMM-24 para evaluar la inteligencia emocional. El análisis de datos consiste en una regresión múltiple jerárquica. Los resultados ponen de manifiesto que el rendimiento previo y la satisfacción sobre los avances académicos explican un 34.9% del rendimiento académico. Por otra parte, las variables predictivas para la satisfacción son de distinta naturaleza: contexto académico (curso académico y horas de estudio), inteligencia emocional (claridad y reparación) y consumo de sustancias (sustancias alucinógenas consumidas en los últimos 12 meses). Todas ellas alcanzan a explicar el 23,1%. Concluimos que, los determinantes personales del alumnado universitario, deben trabajarse de forma transversal, para que tengan efecto sobre el rendimiento y la satisfacción, mejorando así, la calidad del sistema universitario.

**Palabras clave:** Rendimiento académico, Satisfacción universitaria, Estudiantes universitarios, Inteligencia emocional, Contexto académico.

Recibido: 22/05/2018 - Aceptado: 2/10/2018 - Avance online: 17/10/2018

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There is currently some consensus to consider academic achievement and student's satisfaction as the main indicators of the quality of university education (Tejedor, 2003).

Three types of factors are thought to influence academic achievement (Garbanzo, 2007): personal factors (class attendance, skills, psychological well-being, etc.), social factors (social differences, family environment, parents' educational level, etc.), and institutional factors (choice of degree, student environment, student-teacher relationship, etc.).

On another hand, students' satisfaction refers to their positive consideration of the results and educational experiences, as a function of the attention received to meet their needs and achievement expectations (Gento & Vivas, 2003; Weerasinghe, Lalitha, & Fernando, 2017). Thus, satisfaction is related to factors such as tutorial attention, intrinsic motivation, teacher's attitude, academic environment, use of interactive methodologies, and academic achievement and expectations (González-Arias, Carabantes-Olivares, & Muñoz-Carreño, 2016; Tessema, Ready, & Yu, 2012).

As can be observed, among the determinants of quality (assessed by means of the indicators achievement and satisfaction), it is unusual to study the incidence of personal factors, which is why we focus on them in this work. Among the students' personal factors, we distinguish three groups:

*Substance consumption.* There is evidence that consumption of psychoactive substances could be related to low academic achievement (Caso-Niebla & Hernández-Guzmán, 2007; Pritchard & Wilson, 2003; Tejedor, 2003) and to institutional dissatisfaction in the university population (Moral, Rodríguez & Ovejero, 2010).

*Emotional intelligence (EI),* understood as the skill to identify, express, understand, and adequately manage one's own and others' emotions, it has positive effects on personal adaptation in different life areas, among them, the educational area (Anadón, 2006; Fernández-Berrocal & Ruíz, 2008; Mestre, Gutiérrez, Guerrero, & Guil, 2017; Pérez & Castejón, 2007). However, the relation between EI and academic achievement is controversial.

On the one hand, some works report a direct relation between the two concepts (Gil-Olarte, Palomera & Bracket, 2006; Pérez & Castejón, 2007) whereas, in other studies, the relation is considered indirect, that is, the effect of EI on academic achievement is modulated by other variables such as well-being or psychological balance (Extremera & Fernández-Berrocal, 2003; Ferragut & Fierro, 2012; Serrano & Andreu, 2016). In any event, in some works that studied the relation between EI and university satisfaction, no relation was observed in a general sense, but there was a relation in specific areas, for example, in nursing students (Grace, 2004) and in online universities (Thompson, 2013).

*Academic context,* understood as the set of variables describing the circumstances in which the teaching-learning process occurs, for example, class attendance, prior performance, hours of study, etc... (Johnson & Buck, 1995). These variables can have an impact on academic achievement and satisfaction, influencing university quality (Hernando, Oliva & Pertegal, 2012). Accordingly, some studies reveal that class attendance and prior performance are two important predictors of academic achievement whereas hours of study have less explanatory potential (Álvarez & López, 2011; Garbanzo, 2007; García, Alvarado, & Jiménez, 2000; McKenzie & Schweitzer, 2001).

The goal of the present investigation is to study the prediction of academic achievement and university satisfaction, as indicators of quality, through these personal variables. For this purpose, we focused on the analysis of the following variables: Consumption of psychoactive substances: classified as a function of their effects on the central nervous system, Emotional intelligence and Academic context: Academic course, hours of study, absenteeism and prior performance.

According to the literature, we hypothesize that emotional intelligence, the consumption of substances as variables in the student's context, will predict the quality of higher education. So quality indicators will be positively related

to emotional intelligence, hours of study, prior achievements and the academic course. And they will be negatively related to substance use and absenteeism.

## METHODOLOGY

### PARTICIPANTS

The sample is made up of 202 students with a mean age of 21.83 ( $SD = 6.39$ ), the majority females (82.2%), who are studying psychology subjects in different degrees of the University of Huelva (Spain): Psychology, Humanities, Labor Relations and Human Resources. Of these participants, 51.98% are first-year students, 33.66% are second-year students, 3.96% are in their third year, and 10.4% are fourth-year students.

### INSTRUMENTS

The questionnaire contained the following six parts:

*Sociodemographic data:* Age, sex, and work situation of the participants.

*Substance consumption:* substances were classified into three groups according to their effects on the central nervous system; depressants (alcohol, benzodiazepine, illegal methadone, other opiates and heroin), stimulants (cocaine, freebase cocaine, tobacco, and amphetamines), and hallucinogens (cannabis, designer drugs, and other hallucinogens such as LSD, phencyclidine, psilocybin, peyote, and mushrooms). Participants responded to 36 items about the quantity (according to the number of cigars for tobacco and cannabis, glasses of alcohol, pills or grams) and the frequency of consumption in the last 30 days and in the last 12 months. It has been prepared *ad hoc*, based on the European Adaptation of a Multidimensional Assessment Instrument for Drug and Alcohol Dependence (EuropAsi) (Bobes, González, Sáiz, & Bousoño, 1996).

*Levels of satisfaction:* 8 items, rated on a six-point Likert-type scale (ranging from 0, nothing satisfied, to 5, very satisfied), requested information about the degree in general, the teaching methodology, the assessment method, the professors' quality, professor-student relationships, academic progress, the university services, and the university environment. It has been prepared *ad hoc*. In our sample, Cronbach's alpha for total scale was  $\alpha = .79$ .

*Academic context:* 4 items referred to the entrance examination grade (values from 0 to 14), academic course, hours of weekly study, absenteeism (days per semester).

*Academic achievement:* They were asked about the grades obtained (excluding the subjects for which the participant did not take the exam). Academic performance was calculated by averaging the grades of all exams completed (ranging from 0 to 10).

*Emotional intelligence* was assessed by means of the Trait Meta Mood Scale-24 (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; adaptation by Fernández-Berrocal et al., 1998). This scale contains 24 items, rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). It has three dimensions, with 8 items each: Attention (identifying one's own and others' emotions and knowing how to express them), Clarity (understanding emotions), and Repair (capacity to manage emotions). In our sample, Cronbach's alpha for each dimension was as follows: Emotional Attention  $\alpha = .88$ , Emotional Clarity  $\alpha = .90$ , and Emotional Repair  $\alpha = .87$ .

### PROCEDURE

Data were collected through a questionnaire, either online or in person. For the telematic mode, we used the Moodle virtual teaching environment of the University of Huelva. For on-site registration, we used the same questionnaire in paper format. In all cases, the participants

sign an informed consent and completed the questionnaire voluntarily and anonymously.

## RESULTS

### DATA ANALYSIS

Data were analyzed with the SPSS 20 statistical package. In the descriptive analysis, means and standard deviations were calculated for the quantitative variables, and percentages were obtained for the qualitative ones. To analyze the effect of the independent variables on academic achievement and university satisfaction, we used Pearson correlations for the quantitative variables, Student’s t-test for independent samples for the quantitative variables, and ANOVA for the variable academic course. We performed multiple linear regression analysis for each criterion variable: academic achievement and university satisfaction.

### DESCRIPTIVE ANALYSIS

Firstly, we analyzed the effects of the qualitative variables (sex, work situation, and academic course) on the indicators of quality: achievement and satisfaction (Table 1).

The results revealed statistically significant differences in university satisfaction as a function of course,  $F(3, 201) = 3.14, p = .027$ . Significant differences in satisfaction between first- and second-year students were confirmed through Bonferroni adjustment ( $p < .05$ ), indicating less satisfaction in the second-year students.

Table 2 presents the descriptive analyses of the quantitative variables: age, emotional intelligence, academic context, and satisfaction.

*Table 1*  
Distribution of sociodemographic data and descriptive statistics, as a function of academic achievement and university satisfaction

				Academic achievement		University satisfaction	
		<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	Male	36	17.82	5.99	1.57	3.49	0.52
	Female	166	82.18	6.41	1.19	3.66	0.56
Is working	No	150	74.26	6.35	1.29	3.63	0.54
	Yes	52	25.74	6.28	1.24	3.65	0.62
Course	1st	105	51.98	6.30	1.21	3.74	0.53
	2nd	68	33.66	6.22	1.34	3.51	0.55
	3rd	8	3.96	6.26	1.06	3.64	0.49
	4th	21	10.40	6.86	1.41	3.46	0.60

*Table 2*  
Descriptive statistics of the age, emotional intelligence, academic contextual variables, and university satisfaction

Variables		<i>M</i>	<i>SD</i>
Age (years)		21.83	6.39
Emotional intelligence	Attention	27.77	6.02
	Clarity	28.67	5.43
	Repair	28.72	5.99
Academic context	Entrance examination grade	7.45	1.41
	Hours of study	11.57	8.92
	Absenteeism	5.07	11.99
University satisfaction	Degree	4.17	0.87
	Methodology	3.33	0.77
	Assessment method	3.19	0.81

Table 2 (Continuation)  
Descriptive statistics of the age, emotional intelligence, academic contextual variables, and university satisfaction

Variables		M	SD
University satisfaction	Faculty quality	3.53	0.71
	Professor-student relations	3.71	0.85
	Academic progress	3.86	0.89
	University services	3.35	1.07
	University environment	3.90	0.98
	Total	3.63	0.56
Academic achievement		6.33	1.27

## CORRELATION ANALYSIS

With regard to substance consumption, the results revealed that the highest levels of consumption were observed for alcohol ( $M = 2.92$ ,  $SD = 1.67$ ), nicotine ( $M = 2.42$ ,  $SD = 4.97$ ), and cannabis ( $M = 0.41$ ,  $SD = 0.74$ ), and no consumption of heroin, illegal methadone, freebase cocaine, or other drugs were observed (Table 3).

Pearson coefficient correlation was calculated for the quantitative variables (age, emotional intelligence, academic context, substance consumption, and satisfaction) to determine which variables are more closely related and thus, include them in the regression models. We highlight the following results of the correlations (Table 4):

Table 3  
Substances consumed (%) and consumption frequency in the past month and past year

		Last 30 days				Last 12 months			
		Consumption		Frequency*		Consumption		Frequency*	
		Yes %	No %	M	SD	Yes %	No %	M	SD
Depressants	Alcohol	79.7	20.3	3.62	4.19	90.6	9.4	48.11	55.46
	Benz.	7.4	92.6	0.80	4.35	10.4	89.6	6.89	44.23
	Total			4.42	5.76			55.00	67.70
Stimulants	Nicotine	33.2	66.8	6.27	11.48	38.6	61.4	70.75	132.56
	Cocaine	0	100	0	0	1.5	98.5	0.03	0.29
	Amph.	0	100	0	0	1.5	98.5	0.01	0.12
	Total			6.27	11.48			70.80	132.61
Hallucinogens	Cannabis	18.3	81.7	1.05	3.98	33.2	66.8	11.54	48.10
	Designer D.	0	100	0	0	1.5	98.5	0.02	0.21
	Other	0.5	99.5	0	0.07	3	97	0.05	0.38
	Total			1.06	3.98			11.62	48.20

Note: Benz. = Benzodiazepines, Amph. = Amphetamine, Designer D. = Designer drugs, Other = Other hallucinogens

\* Frequency: alcohol = number of drinks, nicotine and cannabis = number of cigarettes, benz = number of pills and for the other substances = grams.

Table 4

Pearson correlations between emotional intelligence dimensions, academic context, university satisfaction, substance consumption and age

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Attention																
2	Clarity	.105															
3	Repair	-.09	.288**														
4	Prior perform.	.162*	.126	-.046													
5	Hours study	-.067	.119	.134	.017												
6	Absenteeism (days)	-.054	-.086	-.009	-.12	-.134											
7	Achievement	.019	.119	.022	.497**	.128	-.218**										
8	Satisfaction	-.083	.291**	.257**	.066	.297**	-.137	.151*									
9	D-F30	.087	-.085	.013	-.166*	-.129	.190**	-.081	-.166*								
10	D-F12	.115	-.096	.028	-.113	-.063	.165*	-.048	-.104	.840**							
11	S-F30	.085	-.054	-.133	-.029	.047	-.057	-.03	-.013	.233**	.212**						
12	S-F12	.081	-.052	-.152*	-.015	.068	-.05	-.012	.024	.233**	.218**	.975**					
13	Hal-F30	.049	.012	-.078	-.108	.042	.174*	-.078	-.104	.164*	.150*	.299**	.295**				
14	Hal-F12	.041	-.013	-.116	-.082	.025	.218**	-.066	-.143*	.216**	.203**	.269**	.281**	.934**			
15	Drinks	.108	.08	-.062	-.153*	-.068	.064	-.007	-.038	.063	.139*	.05	.047	.106	.051		
16	Joints	.094	.058	-.044	-.076	-.021	.111	-.027	-.065	.195**	.236**	.359**	.376**	.636**	.620**	.254**	
17	Cigarettes	.092	-.051	-.121	-.005	.01	-.051	-.039	-.027	.306**	.313**	.757**	.764**	.143*	.135	.07	.284**
18	Age	-.084	-.043	.123	-.280**	.031	.055	-.161*	-.027	.316**	.252**	-.005	.009	-.039	-.024	-.214**	-.055

Note: Prior Perform = Prior performance; D-F30 = depressants frequency last 30 days; D-F12 = depressants frequency last 12 months; S-F30 = stimulants frequency last 30 days; S-F12 = stimulants frequency last 12 months; Hal-F30 = hallucinogens frequency last 30 days; Hal-F12 = hallucinogens frequency last 12 months.

\*  $p < .05$  (two-tailed). \*\*  $p < .01$  (two-tailed)

Positive correlations were observed between academic achievement, prior performance (entrance examination grade) ( $r = .497$ ;  $p < .001$ ), and total satisfaction ( $r = .151$ ;  $p = .032$ ). Of the different aspects included in satisfaction, academic achievement correlated positively with assessment methods ( $r = .150$ ;  $p = .033$ ) academic progress ( $r = .348$ ;  $p < .001$ ) and satisfaction with the degree ( $r = .180$ ;  $p = .010$ ). And negative correlations were observed between academic achievement with age ( $r = -.161$ ;  $p = .022$ ) and absenteeism ( $r = -.218$ ;  $p = .002$ ).

Within EI, positive correlations were observed between the dimensions of Clarity ( $r = .291$ ;  $p < .001$ ) and Repair ( $r = .257$ ;  $p < .001$ ) and total satisfaction. And according

to the academic context, positive correlations were observed between hours of study with total satisfaction ( $r = .297$ ;  $p < .001$ ).

And lastly, regarding substance consumption, a negative correlation was found between satisfaction and consumption, especially, consumption of depressants at the short term ( $r = -.166$ ;  $p = .018$ ). and hallucinogens at the long-term ( $r = -.143$ ;  $p = .043$ ).

## PREDICTIVE ANALYSIS

On the basis of the results of the correlations, we performed step-wise multiple regression analysis for academic achievement and university satisfaction (Table 5).

Table 5  
Multiple regression analysis for the criterion variables academic achievement and university satisfaction

Academic achievement							
Model	Predictor variables	$R^2$	$F(gI)$	$p$	$\beta$	$t$	$p$
Step 1	Entrance examination grade	.247	65.72 (1,201)	<.001	.497	8.11	<.001
Step 2	Entrance examination grade	.349	53.25 (2,201)	<.001	.478	8.34	<.001
	Satisfaction w. advances				.319	5.56	<.001
University satisfaction							
Model	Predictor variables	$R^2$	$F(gI)$	$p$	$\beta$	$t$	$p$
Step 1	Hours of study	.088	19.34 (1,201)	<.001	.297	4.40	<.001
Step 2	Hours of study	.154	18.15 (2,201)	<.001	.266	4.052	<.001
	Clarity				.259	3.945	<.001
Step 3	Hours of study	.185	15.01 (3,201)	<.001	.262	4.051	<.001
	Clarity				.265	4.099	<.001
	Course				-.176	-2.74	.007
Step 4	Hours of study	.212	13.57 (4,201)	<.001	.244	3.811	<.001
	Clarity				.218	3.282	.001
	Course				-.185	-2.927	.004
	Repair				.173	2.597	.01
Step 5	Hours of study	.231	11.75 (5,201)	<.001	.25	3.927	<.001
	Clarity				.22	3.353	.001
	Course				-.19	-3.031	.003
	Repair				.156	2.345	.02
	Hallucinogens-F12				-.136	-2.16	.032

In Step 2, 34.9% of the variance of academic achievement was predicted by prior achievement (entrance examination grade) and, with less intensity, by satisfaction with academic progress. In this model,  $R^2$  increased from .247 to .349, a difference with the previous  $R^2$  of .101,  $F(1,199) = 30.942$ ,  $p < .05$ .

With regard to university satisfaction, Step 5

accounted for 23.1% of its variance through the variables—from greater to lesser intensity—hours of study, Clarity, academic course, Repair, and the frequency of consumption of hallucinogens in the past year. In this model,  $R^2$  increased from .143 to .231, a difference with the  $R^2$  of the first model of .088, and the increases of  $F$  in all the models were significant at  $< .05$ .



## DISCUSSION

The results of this study supports the hypothesis of impact of students' personal variables (substance consumption, EI, and academic context) on university quality as assessed by its main indicators: achievement and satisfaction.

With regard to the consumption of psychoactive substances, our results are not consistent with prior works that found direct negative effects on academic success (Caso-Niebla & Hernández-Guzmán, 2007; Musgrave-Marquart, Bromley, & Dalley, 1997; Tejedor, 2003). However, consumption could have an indirect impact on satisfaction in the educational setting, just as it affects life satisfaction in general (Del Aguila, 2016).

With regard to EI, we observed a positive correlation between the Clarity and Repair dimensions and academic satisfaction. These dimensions explain part of satisfaction, so a possible indirect effect of EI on academic achievement is supported (Extremera & Fernández-Berrocal, 2003; Ferragut & Fierro, 2012; Mega, Ronconi, & De Beni, 2014; Serrano & Andreu, 2016). Our results also argue that EI is closely linked to greater life satisfaction in the university system, as also occurs in other scenarios (Anadón, 2006; Mikulic, Crespi, & Cassullo, 2010).

With regard to academic context (prior performance, absenteeism, hours of study, and academic course), our results support that prior achievement (entrance examination grade) is the best predictor of university academic success (Latiesa, 1992; Rodríguez, Fita, & Torrado, 2004). Moreover, academic success is closely linked to satisfaction, in the sense that students who are more successful are also more satisfied. This relation may be mediated by factors such as self-concept, self-esteem, and students' positive expectations about themselves and their academic skills (Álvarez et al., 2015; Urquijo, 2002). Regarding absenteeism, our results support the conclusions of previous works in the sense that class attendance is related to better achievement (Álvarez & López,

2011; Garbanzo, 2007; García et al., 2000). On another hand, regarding the variable hours of study, the results indicate that it is related to satisfaction. In a similar vein to earlier works, students who are more dedicated to, absorbed by, and vigorous in their studies are more satisfied (Caballero, Abello & Palacio, 2007; Green, Hood, & Neumann, 2015). Lastly, the variable academic course may also have an impact on satisfaction. Our results are consistent with works showing that first-year students' satisfaction is greater than that of second-year students (Arena, Arnaboldi, & Azzone, 2010).

These results allow us to conclude that students' personal factors affect the quality of university education. These determinants are predominantly susceptible to improvement through psychosocial intervention, for example, the implementation of workshops to improve EI. Other determinants could be improved through institutional measures, for example, by increasing the availability of spaces and time in which students could study, and, lastly, through preventive health interventions to decrease the consumption of psychoactive substances. These and other measures would increase university students' levels of achievement and satisfaction and, thereby, the quality of the system.

We think it is interesting continue with this type of studies, including other degrees and universities. We also recommend taking into account other psychological, social, and pedagogic factors that may directly or indirectly affect students' achievement and satisfaction and therefore, the quality of the university system (Garbanzo, 2007; Martín del Buey & Romero, 2003; Tejedor 2003).

To conclude, the results of this work support that some personal determinants such as consumption of psychoactive substances, EI, and the academic context affect the quality of the university system, due to their influence on achievement and satisfaction. These determinants are predominantly susceptible to improvement. Hence, by intervening in them, we can improve the quality of the system.

This study has some limitations, for example, those associated with the use of self-reports



for data collection, besides the limitations of the cross-sectional studies. We recommend expanding the sample and including other study populations in order to increase the representativeness and generalizability of the data.

- **Conflict of interest**

The authors declare no conflict of interest.

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