ACADEMIC PERFORMANCE, INTELIGENCE AND PERSONALITY IN UNIVERSITY STUDENTS

Dora Elizabeth Granados-Ramos[1], Gloria Olivares-Pérez[2], Rossana Bigurra-de la Hoz[3], Sebastián Figueroa-Rodríguez[4]

Universidad Veracruzana, Facultad de Psicología-Xalapa, Cuerpo Académico Investigación y Desarrollo Tecnológico en Psicología

Abstract

The aim of this research was to analyze the characteristics of academic achievement, intelligence and personality of psychology first-year students. 69 students participated, in which performance in the EXANI-II of admission to the career was considered two years later. They were evaluated through Raven's Progressive Matrixes test and Minnesota Multiphasic Personality Inventory 2. Significant differences were found ($p < .05$), when comparing averages from two years of study by sex; scores logical-mathematical reasoning with levels above the average term intelligence; School averages and EXANI-II with personality scales. Based on these indicators, educational strategies will be generated to strengthen academic performance of university students.

Keywords: academic performance, intelligence, personality, university students, Mexico.

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[1] Manantial de San Cristóbal S/N, Col. Xalapa 2000, Xalapa, Veracruz México. Laboratorio de Psicobiología, Tel. (52) 8421700 ext.19518, Email: dgranados@uv.mx. Corresponding autor.

[2] Unidad de Servicios e Investigación Psicoeducativa, Email: golivares@uv.mx

[3] Email: rbigurra@uv.mx

[4] Coordinador del Cuerpo Académico Investigación y Desarrollo Tecnológico en Psicología, Email: sfigueroa@uv.mx

Introduction

Academic performance has been analyzed from the level of knowledge, mostly expressed in numerical gradation, as a result of evaluations that measures the product of the teaching-learning process, in which a student is involved. It is considered that academic performance is the result of the integration of diverse factors that act on the person who learns (Ocaña, 2011). Thus, in the developing countries, the educational center, the family and the student caractheristics have been considered as associated factors (Cueto, 2007).

It seems to be internal and external components associated with academic performance, which may be social, cognitive and emotional; that is, they are personal, social and institutional determinants, linked to student learning performance(Garbanzo, 2007).

Culturally, it has been considered that one of the determining psychological factors for success in studies is intelligence; however, in the last decades, different theoretical approaches have been developed about human intelligence, in which, the importance of emotional and personality factors in intelligent behavior, academic performance, dropout or permanence in educational spaces is recognized (Goleman, 1995).

Curricular tendencies of Higher Education Institutions, reflect that these factors, are not oblivious to the transformations of socioeconomic and cultural conditions of the context, and are strongly imbricated with the scopes of the professions, the development of the occupational fields, as well as with the need for a University pedagogical transformation (Zanatta and Yurén, 2012).

Specifically, in regard to the field of Psychology, the period of academic training is that which apparently allows the student to structure a sense of identity as a professional - the self as a psychologist - through an integral process that involves factors such as training curricular, professional experience and personal development (Zanatta and Yurén, 2012). This promotes and demands from the psychologist, a greater and continuous effort in the commitment to develop competences, based on an integral theoric and practic training, based on self-knowledge as a human being and of his social responsability as a person committed to the intrinsic values to his/her profession, if it is to be complete in training efficiently (Harrsch, 2005, Páramo, Stranjero, García, Torrecilla, and Escalante, 2012).

It seems to have been shown that intelligence is a predictor of student performance (Garbanzo, 2007); some authors have expressed that social intelligence is related to the adequate development of learning (Praditsang, Hanafi, & Walters, 2015), while others have proven that emotional intelligence is related to academic success (Páez and Castaño, 2015; Kumari & Chamundeswari, 2015).

The analysis of personality characteristics of new students entering the university, has been of interest in national universities and abroad, considering this determining factor for their permanence and success in the study of human behavior (Martínez, Nava and Ortega, 2005; Díaz, Morales, Rodríguez, and Amador, 2009; Aragón, 2011).

Some studies in turn have shown the contribution of the personality profile in the academic performance, dropout or permanence in the educational spaces of the university students in the career of Psychology (Díaz et al., 2009).

The objective of this research, was to analyze the characteristics of academic performance, intelligence and personality of Psychology students of a Mexican public university.

Method

Design

An study was carried out trough a non-experimental design, that describes the academic performance of a study group of first admission to the Psychology degree and two years after completed it, as well as the characteristics of intelligence and personality, upon admission.

Respondents

Sample consisted in 69 students from 190 new students, right after admission the university in Psychology career of a Mexican public school. Previous to get involved in the research, students signed an informed consent. Group consisted of 24 men (35%) and 45 women (65%), with an average age of 18 years 8 months, SD = 9, from the regions of Veracruz, Puebla, Ciudad de México, Oaxaca, and Quintana Roo.

Instruments

Academic performance was documented with data from the Inquiry Profile Consultation System, SCOPI 2011 (Universidad Veracruzana, 2011). High School scores and of the entrance exam were obtained from the EXANI-II, which evaluates the areas of: Logical-mathematical reasoning, Mathematics, Verbal reasoning, Spanish, Information technology, thus, providing a Total score. The EXANI-II exam (CENEVAL, 2017) informs to the institutions about the level of performance. It includes 88 items, 80 for qualification and 8 to test. Maximum time for the resolution of the exam is 120 minutes and generates a score of 0 to 100 points. In addition, the averages of each student were documented, after having completed two years of the Licenciatura degree in Psychology.

Raven Progressive Matrixes Test was used, which measures intelligence, intellectual capacity and general mental ability by means of the comparison of forms and the reasoning by analogies. The scores ≥95 were considered superior, from 75 to 90 as superior to the average, 26 to 50 average, 6 to 25 lower than the average and ≤5 deficient (Raven, 2006).

Minnesota Personality Multiphasic Inventory, MMPI-2, was applied to measure the personality variable. This instrument is self-describing with clinical, supplementary and content measures, with applications for clinical, educational, or research evaluations (Hathaway and McKinley, 2008). For the purposes of this research, only the basic scales were considered (see table 1).

Table 1. Scores of the Basic Scales of the Minnesota Multiphasic Personality Inventory (MMPI.2)

Basic scales	Scores
L	≤49 *low*, de 50 a 59 *medium*, 60 a 69 *moderate*, 70 a 79 *high*y ≥ 80 *very high*
F	≤44 *low*, de 45 a 55 *medium*, 56 a 70 *moderate*, 71 a 90 *high* y ≥ 91 *very high*
K	≤*40 low*, de 41 a 55 *medium*, 56 a 70 *moderate* y ≥ 71 *high*
1, 2, 3, 4, 6, 7, 8, 9, 0	40 *low*, de 41 a 55 *medium*, 56 a 65 *moderate*, 66 a 75 *high* y ≥ 76 *very high*
	sexo masculino
5	≤40 *low*, de 41 a 55 *medium*, 56 a 65 *moderate*, 66 a 75 *high* y ≥ 76 *very high*
	sexo femenino
	≤40 *low*, de 41 a 50 *medium,* 51 a 59 *moderate*, 60 a 69 *high* y ≥ 70 *very high*

Process

To obtain the averages in High School and in the EXANI-II, the data of the Inquiry Profile System were consulted, SCOPI 2011 (Universidad Veracruzana, 2011) and to document the academic performance two years after completing the degree, the electronic portal were consulted by each one of the participants.

The Raven Progressive Matrices Test was conducted in a session of 30 to 60 minutes; the application of the personality instrument (MMPI-2) was carried out in a session in an average time of 90 minutes, considering the instructions of the Instrument Manual. The qualification and interpretation of the inventory was done via the criteria established in the test manual, observing the ethical criteria of discretion, conditions to answer the test and confidentiality of the results. Instruments were applied in a room free of distractor stimuli, with a maximum of 20 students involved.

Data analysis

Using the JMP version 12 of an statistical program, Shapiro-Wilk test was applied to determine if data had normal distribution. Non-parametric Mann-Whitney U test was also applied, to establish comparisons between sex variables, High School scores, and EXANI-II and personality scales. In the same way, results of personality scales and intelligence were compared with High School scores, EXANI-II and average data, after two years of being enrolled in Psychology career.

Results

Average of academic performance the students obtained in High School was 83 for the female and 82 for the male; in the EXANI-II, the average in total score was 74 for female and 75 for the male. In the EXANI-IIsub-tests, male sex obtained the highest average, except in Spanish and

Information technology. After two years of being enrolled, female obtained the highest average of academic performance, with 87 (see figure 1).
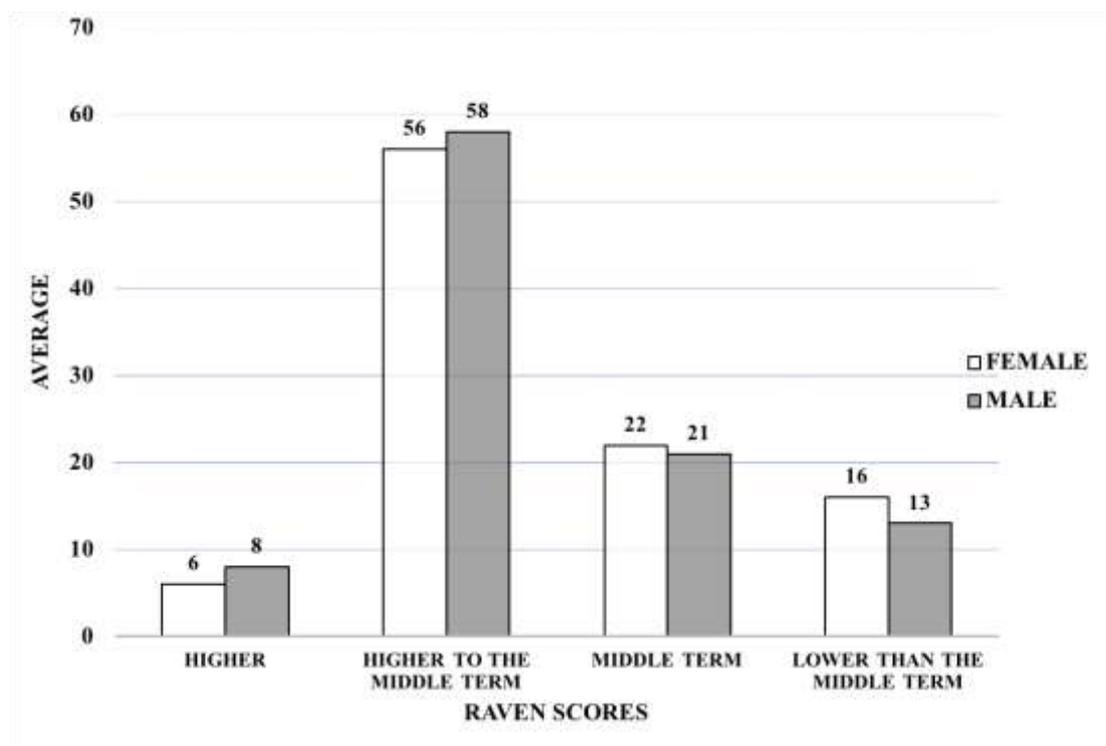
Figure 1. Comparison of the total High School, EXANI-II, two years by sex.
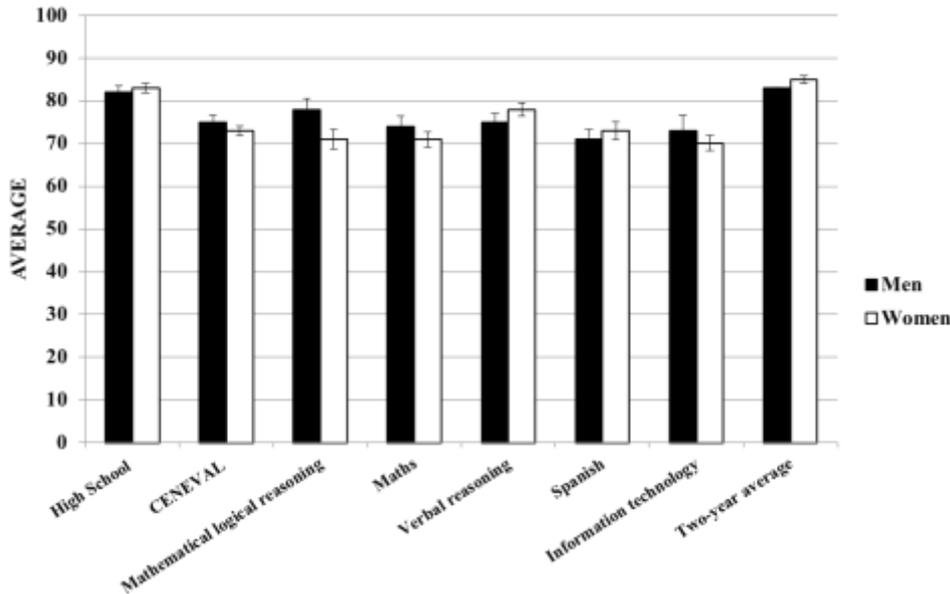
Nota: The standard error is displayed.

In the Raven Progressive Matrixes Test, the highest percentage of students scored higher than the average, 56% of the female and 58% of the male (see Figure 2).

Figure 2. Percentage of Intelligence scores by sex.

In the personality instrument, MMPI-2, the highest percentage of women obtained moderate scores in scales L, F, K,1, 3, 5 and 6, and high score in 8 and 9 scales. In the case of men, the highest percentage obtained moderate scores in scales F, 1, 6, and 7, and very high in scale 8 (see table 2).

Table 2: Percentage of cases by scores on personality scales by sex.

Scales	WOMEN					MEN				
	L	ME	MO	H	VH	L	ME	MO	H	VH
L	22	27	**33**	13	5	12.5	**46**	25	12.5	4
F		42	**51**	7			29	**71**		
K	5	40	**53**	2			**54**	46		
1		40	**42**	13	5		38	**50**	8	4
2	22	**60**	18			21	**71**	4	4	
3	2	35	**47**	16		4	**46**	33	13	4
4	2	**40**	33	15	9		**58**	17	21	4
5	5	22	**40**	24	9		**42**	25	25	8
6		29	**53**	11	7		37	**50**	13	
7	2	**54**	33	11		12	29	**42**	17	
8		9	22	**45**	24		8	4	42	**46**
9	5	24	20	**40**	11	4	4	13	**46**	33
0	20	**64**	7	9		29	**59**	8	4	

The letters correspond to: L *low*, ME *medium*, MO *moderate*, H *high* and VH *very high*.

When comparing the performance of the students in High school scores, EXANI-II scores and intelligence by sex, no significant differences were found. However, when comparing sex with the average obtained after studying two years the Psychology career, significant differences were observed, where highest scores corresponded to women, with an average of 86 (p <0.3). When compared intelligence levels with total scores of the EXANI-II in the area of Logical-Mathematical Reasoning, where the average scores of 76, obtained a intelligence higher than the average level. When comparing intelligence levels with personality scales, no significant differences were found. However, they when comparing academic performance and intelligence with personality and sex variables, where the male (p <.05) with an average of 77 in High school scores was found associated with the moderate scores of scale 1; the scores of 79 in Mathematics of the EXANI-II with the average scores of scale 3; the average of 84 in High school scores with moderate scores in scale 6 and between the higher intelligence scores in Raven with the medium scores in scale 5. In female, significant differences were found between the average scores of 72 in the EXANI II with

the medium scores of scale 7; the averages of 74 in Mathematical Reasoning of the EXANI-II with the medium scores of the scale 0, and the scores of 77 in Verbal Reasoning also with the medium scores of the scale 7.

Discussion

In university education, there is a concern to ensure that students show a successful academic performance throughout the career, in order to reduce the rates of dropout and reprobation, as well as increase terminal efficiency (Garcia et al., 2012). Factors that interfere or stimulate the performance of the students have been explored, which has allowed to establish gradual changes. Therefore, it is necessary to analyze at the beginning of the university student's training, the academic performance indicators to implement strategies throughout their training.

In this research, the proposed objective of analyzing the characteristics of academic performance, intelligence and personality of psychology students was achieved. After having completed two years of the degree, higher averages were observed in the academic performance of women, which coincides with other studies that indicate differences in the performance by gender, where the female gender achieved better scores (Echavarri, Godoy, and Olaz, 2007).

In the same way, significant associations were identified between the Mathematical Logic Reasoning scores of the EXANI-II with the intelligence levels above the average term, which partially agrees, with that other authors affirm, in that intelligence is the better predictor of student performance (González, 2015). In this case, the average of the participants corresponded to 76, which does not correspond to an excellent academic performance.

On the other hand, when comparing the levels of intelligence with the average in two years, no associations were found. Independently of the level of intelligence, the students obtained in their academic performance, scores greater than 85. In this way, it can not be said that intelligence is a predictor of the academic performance of students in the course of their degree. It would be necessary to analyze other variables related to educational process, methodology, level of requirements, characteristics and evaluation criteria among others, which are determining the performance of the student of Psychology.

Intelligence measurements have been widely used in the educational field; however, there are several discussions regarding the ability of their capacity to predict the performance of students throughout their training. In the evaluated participants, it was found that 14.5% obtained results below the average; if previous statements were true, low academic performance should be found in these students; however, as already mentioned, the students, after two years of study, showed adequate academic performance. The above agrees with the point indicated by López (2015), in that intelligence showslow correlation with academic competences, which can be developed throughout the training of students.

In the analysis of academic performance, intelligence and personality data, significant relationships were found, which must be considered with caution, because a causal relationship between the variables mentioned can not be explained. González (2015) demonstrated something similar with the study of personality traits measured with MMPI-2, as a predictors of academic performance in university students, where it was observed that this instrument alone is insufficient to diagnose and predict the academic performance of university students.

The associations found between intelligence and academic performance with some of the clinical personality scales,showstudents' characteristics, which allow them to face the demands of

the school context (Medellín et al., 2011). It should be noted that most of the participants obtained medium and moderate scores on the MMPI-2 scales, which imply characteristics within the normal range.

The admission examination to the degree of Psychology, allowed to obtain data of the performance in the High school and at the beginning of the degree of each one of the participants; however, it was not enough to relate them to the academic performance of the psychologist, as described by other authors that found correlation between the results on admission and student performance (Chaves, Castillo, and Gamboa, 2008).

Conclusions

With the evaluation of intelligence, personality and follow-up of the students in two years, there are more elements to describe the characteristics related to the learning and academic performance of the student.

It will be necessary to employ motivational tools in the classroom, analysis of mental abilities, and vocational interests, values and study habits, among others, at the beginning and throughout their training, so it is possible to correct opportunely the difficulties that arise in some cases, and favor in all the students the adequate performance throughout theirlearning. This would ensure the training of professionals in Psychology who are inserted in the labor field with solid theoretical, practical and ethical foundations.

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