Determinants of admission in the academic performance of excellence in the career of military sciences

Determinantes de ingreso en el rendimiento académico de excelencia en la carrera de ciencias militares

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Resumen

El objetivo planteado fue establecer qué resultados de las pruebas de ingreso predicen un excelente rendimiento académico y deserción del estudiante de la Carrera de Tecnología en Ciencias Militares. Por lo cual, esta investigación presenta un enfoque cuantitativo, con diseño no experimental, de tipo transversal y un alcance correlacional. Se utilizó los promedios de las pruebas de ingreso y rendimiento académico por períodos académicos de cada estudiante, del archivo y base de datos de la Escuela de Formación de Soldados, para su análisis estadístico. En donde, se observa una correlación significativa baja, entre las pruebas académicas y físicas de ingreso con el rendimiento académico de excelencia. Además, las pruebas de ingreso que predicen el rendimiento académico de excelencia de los aspirantes a soldados son la prueba académica y prueba física.

Palabras clave: Rendimiento académico; estudiantes; pruebas de ingreso: ejército; ciencias militares

Abstract

The stated objective was to establish which results of the entrance tests predict an excellent academic performance and desertion of the student of the Technology Career in Military Sciences. Therefore, this research presents a quantitative approach, with a non-experimental, cross-sectional design and a correlational scope. The averages of the entrance tests and academic performance by academic periods of each student, from the file and database of the Soldier Training School, were used for statistical analysis. Where, a low significant correlation is observed between the academic and physical entrance tests with the academic performance of excellence. In addition, the entrance tests that predict the excellent academic performance of aspiring soldiers are the academic test and the physical test.

Keywords: Academic performance; student; entrance tests; army; military sciences.

Introduction

Academic performance is considered as the indicator of the level of learning that the student has reached at the end of an educational process (Hernández and Maquilón, 2011), which constitutes the point of reference to assess the degree of effectiveness of the learning process. teaching-learning (Santos and Vallelado, 2013).

Likewise, education is considered the fundamental basis for the development of humanity (Batallas, 2014), for which the university aims to ensure that its students, upon completing their curricular plans, are able to function effectively when facing a problem in particular, as well as actively participate in the development and growth of society.

At the same time, it was shown that, in our region, there was no single structure of common determinants of academic performance among countries (Fernández, 2004). Therefore, each region and each university must seek to identify the determinants of the academic performance of their students, in order to develop educational policies according to their particularities.

Academic performance is defined by Santos and Vallelado (2013) as the productivity of the subject, that is, the final product of the application of their effort, established by the activities, traits and more or less correct perception of the knowledge

provided. Which is the product of a set of factors that intervene in its development, among which can be evidenced: a) individual factors, which the student cannot modify, b) factors that belong to the student, which can be changed, and c) factors that are linked to the educational context, therefore, they go beyond the sphere of influence of the student and affect everyone in the group equally (Santos and Vallelado, 2013).

In the military field, considering the determining factors of the academic performance of students is of vital importance, due to all the great logistical burden that is required for the development of education, from selection to admission to training institutes, such as the training and qualification of the same, either because of the cost, as it is an internship regimen, as well as the expense derived from the use of military weapons, in addition to implying a risk for the life of the civilian population as well as poor performance (Castro and Casullo, 2002, Castro and Fernández, 2005, Teneda, Enrique and Núñez, 2018).

Military Training Schools differ from regular university educational institutes, due to the characteristics of military education, in which young people have to perform two combined tasks during their training, on the one hand, intense military training, which brings with it a constant physical challenge, and concomitantly, a university academic routine that implies effort, dedication and hours of study, whose final result is the achievement of a third level degree and a military degree (Castro y Fernández, 2005, Gutiérrez, Teneda and Nárvaez, 2019).

According to a large number of authors, within all the existing determinants, the grade obtained in the university admission tests together with the academic performance prior to university is the most important predictor of the student's academic performance (Garbanzo, 2007). If this characterization is rigorous and objectively measurable, the selection is limited to ordering the students in descending order and subsequently establishing a breaking point for admission as soon as the established quota has been met (Rodríguez, *et al*., 2000).

The admission process generally consists of an evaluation of the students' prior knowledge, the most common being the implementation of instruments that assess verbal, logical, mathematical and writing skills (Zwick, 2012, López, *et al.*, 2020). In Ecuador,

the selection process for admission to universities is determined by the score developed in the standardized national evaluation called the ENES test (national higher education exam), as well as the offer established by each university (Zapata, 2017, López, *et al.*, 2020). However, for admission to the Military Training Schools, as it is a risk education that demands maximum academic, physical and mental demands, it is necessary to complement this process with an evaluation of physical skills, medical and psychological aptitude (Muñoz, 2020, Muñoz and Zambrano, 2020, Pacheco, Acurio and Trujillo, 2021).

The entry profile of the Technology in Military Sciences career is a set of specific attitudes and aptitudes that the aspiring soldier must bring with him, among the main ones are: a) commitment to the practice of principles and values, b) vocation towards life and military service, c) fitness and physical suitability, d) medical conditions favorable to the career, e) psycho-emotional stability and control, and f) skills and abilities to work as a team (Universidad de Fuerzas Armadas - ESPE, 2017, Muñoz, 2020, Muñoz and Zambrano, 2020).

The entrance tests for the Military Training Schools are determined in 4 well-differentiated groups, which seek to select the best applicants who meet both the entrance profile and the pre-established quota, according to details: a) Psychological test, b) Academic tests, c) Physical tests, and d) Medical tests (Muñoz, 2020).

Likewise, the academic performance of the students of the Technology in Military Sciences Career is a set of indicators of academic subjects, physical performance, behavior and military qualities that the student presents, within the Army Soldiers Training School "Vencedores del Cenepa" during the development of the career, since the product that is intended to be delivered to the Army and society, is a disciplined individual, prepared academically, military and physically according to the established standards, it is also necessary to complement this training by instilling a life professional and ethical military.

The curricular design of the "Vencedores del Cenepa" Army Soldiers Training School follows the guidelines of the Organic Law of Higher Education, the Land Force and the University of the Armed Forces - ESPE, in which the primary characteristic is to

present a dual educational model, where both practical theoretical learning is developed as superior technologists in military sciences by the University of the Armed Forces - ESPE, as well as the training of skills and abilities as Army soldiers by FF .AA. This curriculum is planned in 5 academic periods, with an annual cut, where the first year is training and the second year is specialized (Universidad de Fuerzas Armadas - ESPE, 2017).

The planned general objective of this research work is to establish what results of the entrance tests predict excellent academic performance and desertion of the students of the Technology Career in Military Sciences, class 2020-2022, of the Army Soldiers Training School. “Cenepa Winners”. For which, it is essential to meet the following specific objectives: a) detail the results of the psychological, academic and physical entrance tests presented by the students, b) state the results of academic performance, as well as student desertion by academic periods and correlate them with the psychological, academic and physical entrance tests presented by the students, c) find the optimal psychological, academic and physical entrance tests that predict excellent academic performance, as well as student desertion.

The proposed hypothesis of this work was considered as: The results of the entrance tests to the Military Training Schools are directly related to the academic performance and desertion of the students of the Technology Career in Military Sciences, promotion 2020 - 2022, of the Training School for Army Soldiers “Vencedores del Cenepa”.

Knowing the entrance tests that are involved in academic performance would allow identifying the variables that determine the success and failure of the student of the Technology in Military Sciences Career.

Situation for which the scientific problem has been raised as the question: ¿What are the entrance tests that predict excellent academic performance and desertion in the students of the Technology Career in Military Sciences, promotion 2018-2020, of the School Training Course for Army Soldiers “Vencedores del Cenepa?”.

Materials and methods

The present investigative work is an analytical study, which presents a quantitative approach, with a non-experimental, cross-sectional design and a correlational scope.

The universe of this study is given by 1700 students of the Military Sciences Technology Career of the “Vencedores del Cenepa” Army Soldiers Training School, the sample being the total number of second-year military applicants (n = 676), considered a 3% margin of error and greater than 95% confidence level.

The purpose of this research is to know the psychological, academic and physical entrance tests that predict excellent academic performance and the desertion of the students of the Technology Career in Military Sciences, promotion 2020-2022, of the Soldier Training School of the Army "Victors of Cenepa". Which was developed in phases, according to detail:

The first phase seeks to detail the results of the psychological, academic and physical entrance tests presented by the students of the Technology Career in Military Sciences, promotion 2020-2022, by collecting information from the academic department of the School, according to detail:

a) Psychological test:

-Mental capacity: A) recommended, B1) not recommended, 1st possibility of being considered, B2) not recommended, 2nd possibility of being considered, B3) not recommended, 3rd possibility of being considered and C) not recommended.

-Personality test: A) recommended, B1) not recommended, 1st possibility of being considered, B2) not recommended, 2nd possibility of being considered, B3) not recommended, 3rd possibility of being considered and C) not recommended,

b) Academic tests: quantitative assessment: 20-19 points is excellent, 18.99-18 points is very good, 17.99-16 is good, 15.99-14 is average <13.9 is poor.

c) Physical tests: Quantitatively valued out of 20 points, according to a pre-established table of scales: Elbow push-ups: 45 push-ups in 1.30 minutes, abdominal push-ups: 50 sit-ups in 1.30 minutes, trot: distance of 2 miles in 12.57 minutes, swimming: 200 meters in 5.13 minutes, decision jump: from the plank 5 meters high.

Likewise, the results of the academic performance are stated, by academic periods of the students of the Technology Career in Military Sciences, as well as the level of student desertion.

In the development of the next phase, a classification is made in students of the technology career in military sciences who obtain academic excellence in each academic period and those who do not meet this condition.

Finally, in the last phase, it is intended to find the entrance test that predicts excellent academic performance and desertion of the students of the Technology Career in Military Sciences, promotion 2020-2022.

The collection of information of the variables is carried out with the search in the database of the academic department of the School, it is carried out in a previously developed matrix in Excel, and then the variables are analyzed and statistically correlated using the statistical program SPSS version 26, respectively. The variables are expressed as mean ± SD and these were statistically compared using Pearson's correlation and prediction based on linear regression model.

Results

Table 01.

Statistics of the entrance tests in the good academic performance

Variable			%	P_T	A_T	M_C	Per_T	PA	PP	C	MC	GPA
GP		N	676,00 (100,00)									
		Mean		17,19	783,13	B2	B2					
		ED		2,57	51,24	0,89	0,51					
	AP1	Mean						17,75	19,63	19,98	18,50	18,47
		ED						0,47	0,67	0,06	0,02	0,32
	AP2	Mean						17,65	19,42	19,86	18,61	18,37
		ED						0,49	0,77	0,23	0,11	0,34
	AP3	Mean						17,65	19,26	19,79	19,04	18,36
		ED						0,45	0,80	0,30	0,35	0,33
	AP4	Mean						17,90	19,08	19,89	18,71	18,49
		ED						0,32	0,80	0,18	0,18	0,28

GAP_AP1	**N**	18,00 (2,70)									
	Mean		18,46	842,44	B1	B2	18,64	19,97	19,99	18,50	19,06
	ED		1,50	61,83	0,94	0,59	0,09	0,06	0,02	0,00	0,05
GAP_AP2	**N**	18,00 (2,70)									
	Mean		18,27	839,27	B2	B2	18,66	19,83	19,97	18,71	19,06
	ED		2,19	65,78	0,57	0,81	0,11	0,19	0,08	0,14	0,04
GAP_AP3	**N**	14,00 (2,10)									
	Mean		18,92	858,71	B2	B2	18,71	19,82	19,90	19,31	19,12
	ED		1,52	62,74	0,99	0,51	0,15	0,24	0,23	0,44	0,08
GAP_AP4	**N**	29,00 (4,30)									
	Mean		17,85	829,65	B1	B2	18,54	19,73	19,95	18,84	19,08
	ED		2,66	59,11	0,96	0,49	0,13	0,28	0,06	0,14	0,08

ED: estandar desviation, P_T: physical test, A_T: academic test, MC_: mental capacity, Per_T: personality test, GP: general population, GAP: good academic performance, AP: academic period, AS: academic seniority, N: number, PA: performance academic, PP: physical performance, C: conduct, MC: military qualities, GPA: grade point average, %: percentage.

Source: Authors.

In the present study, 676 students of the Military Sciences Technology Career participated, with an average age of 19,25 years. It was evidenced that the average of the physical entrance test was 17.19 points (ED: 2.57), academic test of 783.13 points, (ED: 51.24), mental capacity of B2 and personality test of B2.

Likewise, it was evidenced that, in the first academic period, the average of the general academic performance was 18.47 points, where the best scores were observed in physical performance (19.63 points) and behavior (19. 98 points). In the second academic period, the average of the general academic performance was 18.37 points, where the best scores were observed in physical performance (19.42 points) and behavior (19.86 points). In the third academic period, the average of the general academic performance was 18.36 points, where the best scores were observed in physical performance (19.26 points), behavior (19.79 points) and military qualities (19 .04 points). Finally, in the fourth

academic period, the average of the general academic performance was 18.49 points, where the best scores were observed in physical performance (19.08 points) and behavior (19.89 points).

Table 02.

Correlation of entrance tests with academic performance

Variable			P_T	p	A_T	p	M_C	p	Per_T	p
Pearson`s correlation	AP1	GAP	0,082	0,017	0,193	0,000	-0,045	0,121	0,000	0,495
		PA	0,025	0,525	0,022	0,563	0,057	0,140	-0,650	0,094
		PP	-0,010	0,792	0,056	0,149	-0,046	0,234	0,028	0,472
		C	-0,040	0,306	0,007	0,856	-0,046	0,238	-0,029	0,460
		MC	-0,047	0,229	0,021	0,593	-0,016	0,686	0,003	0,934
		GPA	0,017	0,669	0,039	0,316	0,033	0,400	-0,048	0,216
	AP2	GAP	0,065	0,046	0,179	0,000	0,007	0,433	0,044	0,128
		PA	0,060	0,121	0,033	0,395	0,050	0,199	-0,064	0,097
		PP	0,026	0,507	0,096	0,013	0,002	0,949	0,015	0,691
		C	-0,043	0,262	0,002	0,968	-0,037	0,341	0,009	0,808
		MC	-0,041	0,295	0,043	0,271	0,065	0,091	0,023	0,553
		GPA	0,054	0,161	0,063	0,102	0,041	0,284	-0,048	0,215
	AP3	GAP	0,098	0,005	0,216	0,000	0,008	0,418	0,069	0,038
		PA	0,021	0,581	0,032	0,406	0,034	0,377	-0,018	0,641
		PP	0,028	0,465	0,044	0,254	0,052	0,183	0,073	0,060
		C	-0,017	0,661	0,032	0,409	-0,024	0,532	0,006	0,869
		MC	-0,027	0,478	-0,030	0,446	-0,076	0,049	-0,080	0,039
		GPA	0,023	0,558	0,044	0,252	0,037	0,335	0,007	0,864
	AP4	GAP	0,055	0,079	0,193	0,000	-0,022	0,288	0,020	0,305
		PA	-0,005	0,907	0,038	0,322	-0,010	0,805	-0,007	0,855
		PP	0,003	0,937	0,038	0,332	-0,041	0,288	0,018	0,643
		C	-0,016	0,684	0,041	0,294	-0,014	0,719	0,024	0,532
		MC	-0,002	0,950	0,006	0,886	-0,074	0,056	-0,045	0,245
		GPA	-0,007	0,867	0,059	0,127	-0,032	0,417	-0,001	0,979

P_T: physical test, A_T: academic test, MC_: mental capacity, Per_T: personality test, GPA: grade point average, GAP: good academic performance, p: significance, PA: performance academic, PP: physical performance, C: conduct, MC: military qualities, AP: academic period.

Source: Authors.

In addition, excellent academic performance was evidenced in 18 (2.70%) students in the first academic period, as well as 18 students, 14 students, and 29 students in the second, third, and fourth academic periods, respectively. In the students with good academic performance in the first period, a general average of 19.06 points was observed, which obtained an average of 18.46 points of physical entrance tests, academic tests of 842.44 points, mental capacity of B1 and B2 personality test. In the students with good academic performance in the second period, a general average of 19.06 points was observed, which obtained an average of physical entrance tests of 18.27 points, academic tests of 839.27 points, mental capacity of B2 and B2 personality test. In the students with good academic performance in the third period, a general average of 19.12 points was observed, which obtained an average of physical entrance tests of 18.92 points, academic tests of 858.71 points, mental capacity of B2 and B2 personality test. Finally, in the students with good academic performance in the third period, a general average of 19.08 points was observed, who obtained an average of physical entrance tests of 17.85 points, academic tests of 829.65 points, capacity B1 mental test and B2 personality test.

Table 03.

Analysis of linear regression models of entrance tests as predictors of academic performance

Model		**Non-standardized coefficient**		**Standardized coefficient**		
		B	**DE**	**Beta**	**t**	**Sig.**
1	**Constant**	-0,470	0,108		-4,360	0,000
	P_T	0,004	0,002	0,068	1,781	0,075
	A_T	0,001	0,000	0,185	4,850	0,000
	M_C	-0,008	0,007	-0,042	-1,110	0,268
	Per_T	-0,004	0,012	-0,011	-0,296	0,767

	Constant	-0,482	0,105		-4,576	0,000
	P_T	0,003	0,002	0,047	1,215	0,225
2	**A_T**	0,001	0,000	0,173	4,524	0,000
	M_C	0,002	0,007	0,011	0,280	0,780
	Per_T	0,011	0,012	0,034	0,894	0,372
	Constant	-0,562	0,095		-5,934	0,000
	P_T	0,004	0,002	0,076	1,988	0,047
3	**A_T**	0,001	0,000	0,207	5,455	0,000
	M_C	0,002	0,006	0,012	0,316	0,752
	Per_T	0,016	0,011	0,056	1,480	0,139
	Constant	-0,597	0,136		-4,394	0,000
	P_T	0,003	0,003	0,038	0,980	0,328
4	**A_T**	0,001	0,000	0,189	4,936	0,000
	M_C	-0,004	0,009	-0,017	-0,436	0,663
	Per_T	0,004	0,015	0,100	0,255	0,798

P_T: physical test, A_T: academic test, MC_: mental capacity, Per_T: personality test, Model 1: GAP 1, Model 2: GAP 2, Model 3: GAP 3, Model 4: GAP 4, DE: desviation error, GAP: good academic performance.
Source: Authors.

When performing the analysis of the correlations, it was observed that in the first academic period, students with excellent academic performance have a statistically significant low correlation with physical tests (0.082, p: 0.017) and academic tests (0.193, p: 0.000). In the second academic period, students with excellent academic performance have a statistically significant low correlation with physical tests (0.065, p: 0.046) and academic tests (0.179, p: 0.000). In the third academic period, students with excellent academic performance have a statistically significant low correlation with physical tests (0.098, p: 0.005), academic tests (0.216, p: 0.000) and personality tests (0.069, p: 0.038). Finally, in the fourth academic period, students with excellent academic performance show a statistically significant low correlation with academic tests (0.193, p: 0.000).

It is necessary to mention that the performance of the students in a general way in each academic period that present a statistically significant low correlation are: academic

tests (0.096, p: 0.013) with the physical performance in the second academic period, mental capacity (- 0.076, p: 0.049) and personality test (-0.080, p: 0.039) with the military quality in the third academic period, and mental capacity (-0.074, p: 0.056) with the military quality in the fourth academic period.

In the model of the prediction of an excellent academic performance by academic periods, the following was evidenced: in the first academic period the academic test (p: 0.000) is statistically significant, and also in the second (p: 0.000) and fourth (p : 0.000) academic period respectively, however, in the third academic period the physical test (p: 0.047) and the academic test (p: 0.000) are statistically significant. That is, the predictive entrance test for excellent academic performance in students of the Technology in Military Sciences career, in order of importance, is the academic test and the physical test in the four academic periods.

Table 04.

Desert student

		%	P_T	A_T	M_C	Per_T	Non-standardized coefficient		Standardized coefficient		
							B	DE	Beta	t	Sig.
	N	32 (4,60)									
Desert	**Mean**		15,86	786,46	B2	B3					
	ED		3,51	63,73	0,93	0,56					
	SE		0,62	11,26	0,16	0,10					
Pearson`s correlation			-0,10	0,01	-0,01	0,06					
Sig.			0,00	0,36	0,37	0,03					
Model 1	**Constant**						0,03	0,13		0,24	0,80
	P_T						-0,00	0,00	-0,11	-2,90	0,00
	A_T						8,21	0,00	0,02	0,54	0,59
	M_C						-0,00	0,00	-0,00	-0,10	0,91
	Per_T						0,03	0,01	0,07	1,93	0,05

P_T: physical test, A_T: academic test, MC_: mental capacity, Per_T: personality test, DE: desviation

error, N: number, SE: standar student, Model 1: student desert.

Source: Authors.

Regarding the student desertion of the technology career in military sciences, it is evident that there were 32 (4.60%) desertions, of which 28 were in the first academic period as voluntary withdrawal, 3 in the second academic period and 2 in the fourth academic period as academic leave and 1 in the fourth academic period as medical leave. Likewise, it is evident that the average of the physical test is 15.86 points, academic test of 786.46 points, mental capacities of B2 and personality test of B3. In addition, it is also observed that the statistically significant entrance tests are the physical test and the personality test, which have a low correlation with student dropout. Finally, it is evident that the tests that predict student dropout, although poorly, are the physical test (coef.: -0.110, p: 0.004) and the personality test (coef.: 0.073, p: 0.053).

Discussion

The information available on the relationship between admission tests and academic performance in the context of military educational institutions is scarce, therefore, the analysis was carried out with greater emphasis on pairs of regular university educational institutions.

The averages of the academic, physical and psychological admission tests (17,19 points, 783,13 points, B2 and B2, respectively) in this study, as well as those obtained by students with excellent academic performance (18,38 points , 842,52 points, B1 and B2, respectively) are higher than what was evidenced in a similar study in 648 aspiring soldiers in an Ecuadorian military training institute, where an average academic test of 10,03 points is recorded (equivalence 515/1000 points), followed by 14,5 points in the physical test, and in the psychological test: an average of B2 in mental capacity and B2 in the personality test (Muñoz and Zambrano, 2020). However, the averages are similar to those observed in a study of 130 students from the medical school of the University of Azuay in Ecuador, who presented an average admission test score of 79,20/100 points (equivalent to 792/1000 points) (Alvear, 2014).

The opposite fact is observed in the study of 116 medical students from a university in northern Mexico, where the average academic admission test is 50,8/100 points

(equivalence of 508/1000 points) (Gómez, *et al*., 2012). A similar situation was observed in 572 students of the finance and accounting degree at the University of Sevilla in Spain, where the mean admission score was 5,8/10 points (equivalence of 580/1000 points) (Jiménez, *et al.*, 2015).

The average of the general academic performance of the students in the different academic periods (18,42 points), as well as the average of the students who present an excellent academic performance (19,08 points) is higher than what was observed in a study in an Ecuadorian military training institute in the first military year, where they obtained 17,81/20 points, and in the second year 18,29/20 points, likewise, to what was observed in a study in medical students of the University of Azuay in Ecuador, which was found at 18,23/20 points (Muñoz and Zambrano, 2020; Alvear, 2014).

Likewise, a higher average was obtained than what happened in the students of the Universidad Veracruzana de México, where an average of 77,24/100 points (equivalence of 15,45/20 points) was observed (Chain, *et al*., 2003; Jiménez, *et al*., 2015).

The correlation of the academic admission tests with the excellent academic performance of the students of the technology career in military sciences in the first academic period (F: 0,193, p: 0,000), second academic period (F: 0,179, p: 0,000), third academic period (F: 0,216, p: 0,000) and fourth academic period (F: 0,193, p: 0,000), show a low direct statistically significant correlation, likewise, the correlation of physical admission tests with an excellent academic performance of the students in the first academic period (F: 0,082, p: 0,017), second academic period (F: 0,065, p: 0,046) and third academic period (F: 0,098, p: 0,005) evidence likewise, a low statistically significant direct correlation.

Situation that differs from what was observed in a study in aspiring soldiers of an Ecuadorian military training institute, where the academic admission tests are moderately correlated with the academic performance in the first military year (F: 0,539, p: <0,05) and a low direct correlation with the second military year (F: 0,0397, p: <0,05) (Muñoz and Zambrano, 2020). Likewise, similar to the correlation observed in students of the finance and accounting degree at the University of Sevilla in Spain (F: 0,439) (Jiménez, *et al.*, 2015), and in contrast to what was observed in a study at the Technical University

of Ambato in Ecuador where the correlation is low (R: 0,13 and R: 0,21) (López, *et al.*, 2016).

Likewise, it is shown that the physical tests have a low statistically significant direct correlation with the excellent academic performance of the students of the technology career in military sciences, a situation that does not happen with the psychological tests (mental capacity and personality test), which are not statistically significant and have a null correlation index with academic performance. In other words, psychological tests do not fulfill the function of admitting the best students for their training in military sciences.

Thus, the admission tests that predict the academic performance of the students of the technology career in military sciences are the academic tests (coef.: from 0,185 in the first academic period, p: 0,000, to coef.: 0,207 in the third academic period, p: 0,000), in addition, it is evident that the physical tests only present a statistically significant relationship in the third academic period (coef.: 0,076, p: 0,000), likewise, psychological tests are excluded from the results, which present a null linear regression coefficient.

A similar situation is evidenced in a study in aspiring soldiers of an Ecuadorian military training institute where, in the first academic period, it is explained by the academic and physical admission tests (R2: 0,435, p:<0,05), in the II academic period (R2: 0,560, p:<0,05), in the III academic period (R2: 0,560, p:<0,05), in the IV academic period (R2: 0,560, p:<0,05) (Muñoz and Zambrano, 2020).

Also, regarding student desertion in our study, it is evident that there was 4,60% of desertions. A similar situation was evidenced in an Ecuadorian military training institute, where the percentage of student desertion is 4,5 %, in comparison to that existing in other regular university centers, with up to 88,2% of student desertion in the architecture and graphic design career of a University of Guatemala and what is observed in medical students of the University of Azuay in Ecuador, which presents a student withdrawal rate of 30,76% (Muñoz and Zambrano, 2020; Alvear, 2014; Rabe, 2019).

Likewise, they presented an average of the physical test of 15,86 points, academic test of 786,46 points (15,72/20 points), mental abilities of B2 and personality test of B3, averages higher than the average of the admission tests presented by aspiring soldiers of

an Ecuadorian military training institute (academic test: 9,53/20 points, physical test: 12,35/20 points and psychological test: B2) (Muñoz and Zambrano, 2020).

A noteworthy fact is the minimum and maximum gap in the admission exams in the withdrawal students, thus having both in the physical tests (min: 6,523 points, max: 20,00 points), academic tests (min: 702,00 points, max: 910,00 points), and psychological (C_M: min: A, max: B3, and Per_T: min: B2, max: C) great student heterogeneity is evident.

Likewise, it is observed that the statistically significant admission tests are the physical test and the personality test, which present a low correlation with student desertion. However, it is not consistent with what was evidenced in the aspiring soldiers of an Ecuadorian military training institute, where the only test that correlates in an indirect, moderate and significant way is the mental capacity of the admission psychological test (F: -0,468, p:< 0,05) (Muñoz and Zambrano, 2020).

And finally, it is evident that the tests that predict student desertion, although in a low way, are the physical test (coef.: -0,110, p: 0,004) and the personality test (coef.: 0,073, p: 0,053), opposite fact to what was observed in the aspiring soldiers of an Ecuadorian military training institute, where student desertion is explained by the mental test (R2: 0,219 and p: <0,05) (Muñoz and Zambrano, 2020).

Conclusion

Therefore, it is concluded, the selection process of the technology career in military sciences is a primary effort of the Ecuadorian Army, which aims to choose the best students who guarantee subsequent academic and professional success, however, the entrance tests that are applied in the period of admission do not present a strong prediction of the excellent academic performance of the students of the technology career in military sciences. This implies proposing the formulation of new entrance tests with quality standards in accordance with the current context, which allows the admission of students with optimal knowledge and skills to meet the military academic demands of training as a professional, and who are able to face the new challenges in the security and defense of the state in the future.

The results of the entrance tests of the students of the technology career in military sciences who were admitted to the technology career in military sciences show that they are predisposed to have a student population with heterogeneous previous knowledge and skills, which makes it difficult to adapt to the military academic and attitudinal demands of a third level student in military sciences. This opens the opportunity to motivate the development of a propaedeutic proposal, in order to have a student group with homogeneous knowledge and skills, which allows a quality of students, as well as later academically, physically and mentally better prepared professionals

In Ecuador there are three institutes that offer a career in military sciences belonging to the Army, the "Eloy Alfaro" Military High School, the "Vencedores del Cenepa" Army Soldier Training School and the "Tcrn" IWIAS School. Gonzalo Barragán", which have a different mission and vision, framed in the requirements of particular competencies that the Military Institution wants for its military personnel. Situation that allows to replicate the present investigative work in order to know the reality of the prediction of the entrance tests.

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