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ANALYZE SCIENTIFIC PRODUCTION AT THE FACULTY OF MEDICAL SCIENCES OF THE UNIVERSITY OF GUAYAQUIL

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ABSTRACT

The results obtained in the analysis of the two sub-dimensions of the dimension are exposed: scientific production In general, the scientific production dimension addressed in the sub-dimensions scientific productivity and scientific results obtained a mean and SD of 2.38 ± 1,171 and 2.75 ± 1,386 respectively, classified as a medium level according to the opinion of the teachers, according to the scale used for such purposes.

1. INTRODUCTION

Table 1: Mean and standard deviation for the indicators of the SCIENTIFIC PRODUCTION DIMENSION. Questionnaire for teachers

Subdimensions	Mean ± DS
Scientific Productivity	2.38 ±1,171
Scientific Results	2.75 ±1,386

Own Elaboration (Daher J, 2019) n = 197 teachers

In general, the scientific production dimension addressed in the sub-dimensions scientific productivity and scientific results obtained a mean and SD of 2.38 ± 1,171 and 2.75 ± 1,386 respectively, classified as a medium level according to the opinion of the teachers, according to the scale used for such purposes. . It is necessary to point out

that the time of dedication of the teachers and their training could have influenced the level obtained in this dimension.

As analyzed for the external funds management indicator, when considering the average level that results in the scientific productivity sub-dimension, the findings could coincide with what Moran and Taypes point out in a study that aimed to describe scientific production in medical education in Latin America in journals indexed in Scopus in the period 2011-2015, in which it was obtained as a result that of the 850 original articles evaluated 418 (49.2%) had an author from Brazil, 129 (15.2%)) from Mexico, 82 (9.6%) from Chile, 60 (7.1%) from Colombia and 59 (6.9%) from Cuba. Of the 21 Latin American countries evaluated, only 2 had more than 100 articles, this affirms the need to implement strategies and methodologies that enhance scientific production in universities.

This low production in Latin America with respect to other areas may be due to the lack of funding, incentives and research training programs in this area (Morán and Taype, 2017) (González, García and Dorta, 2016).

Publications are the key component of all scientific activity (Peralta, M Solis, Peralta, 2010), with research being one of the fundamental pillars of higher education today, along with teaching and outreach. Thus, scientific production becomes a key element within the quality of Higher Education (Álvarez and Juncosa, 2014).

In the last decade, the Ecuadorian government has promoted the increase in scientific production through the enactment of improvements in universities, incentives to obtain postgraduate degrees, the creation of scientific and technological transfer programs, and the provision of funds to finance inter-institutional projects. scientific research at the national and international level (Medina and others, 2016). These efforts have "awakened" Ecuador to scientific research and technological development, which is reflected in the increase in scientific results.

But there are still great challenges to be solved, Castillo JA, Michael A. P, 2019 states that the excessive work of the university professor in relation to administrative tasks in addition to research, sometimes the little understanding on the part of authorities who do not understand the concept of "Research" from the point of view of the commitment to research activities and resources, the complicated and over-controlled public procurement system that hinders the acquisition of laboratory equipment, supplies and reagents, the uncertainty in budget commitments, and the difficulty of the Bioethics committees to obtain informed consent. Such challenges can be decisive in university scientific production.

Table 2: T Student for the indicators of the SCIENTIFIC PRODUCTION DIMENSION. T-test for means of two paired samples

	Variable 1	Variable 2
Average	2,385	2,75333333
Variance	0,51599	0,21862667
Observations	6	6
Pearson's correlation coefficient	-0,6176185	
Hypothetical difference of means	0	
Degrees of freedom	5	
T-statistic	-0,8415168	
P(T<=t) one tail	0,21922055	
Critical value of t (one tailed)	2,01504837	
P(T<=t) two tails	0,43844111	
Critical value of t (two-tailed	2,57058184	

As can be seen in Table 2, when applying Student's t, a p value greater than 0.001 was obtained, so it can be stated that there are no significant differences between the means of the sub-dimensions corresponding to the scientific production dimension.

Table 3: Mean and standard deviation for the indicators of the SCIENTIFIC PRODUCTIVITY subdimension. Questionnaire for teachers

Indicators	Mean ± SD
Articles published in magazines	2,95±1,279
Articles published in SCOPUS journals	2,49±1,268
Published books or chapters	1,73±1,038
Number of patents	1,32±,842
Articles with international cooperation	2,65±1,041
Publication of articles as first author	3,17±1,558

Table 3: ANOVA for the indicators of the scientific productivity subdimension

ANOVA						
		Sum of squares	gl	Mean quadratic	F	Sig.
Publication in regional magazines	Between groups	158,070	4	39,518	46,686	,000
	Within groups	162,519	193	,846		
	Total	320,589	197			
Publication in high impact journals	Between groups	137,008	4	34,252	36,898	,000
	Within groups	178,230	193	,928		
	Total	315,239	197			
Publication of books or chapters	Between groups	46,037	4	11,509	13,380	,000
	Within groups	165,161	193	,860		
	Total	211,198	197			
Obtaining patents	Between groups	12,031	4	3,008	4,554	,002
	Within groups	126,821	193	,661		
	Total	138,853	197			
International cooperation articles	Between groups	53,687	4	13,422	16,224	,000
	Within groups	158,841	193	,827		
	Total	212,528	197			

As can be seen in table 3, there are significant differences between all the indicators analyzed except in obtaining patents in which the value obtained was greater than 0.001. Below are the results obtained by the Tukey test.

Table 4: Tukey for the indicators of scientific productivity with statistically significant values

Publication in regional magazines				
HSD Tukeya,b				
Articles as first author	N	Subset for alpha = 0.05		
		1	2	3
1	56	1,63		
2	3		2,67	
4	42		2,98	2,98
3	43		3,60	3,60
5	53			3,83
Sig.		1,000	,096	,158

Publication in high impact magazines			
HSD Tukey[a,b]			
Articles as first author	N	Subset for alpha = 0.05	
		1	2
1	56	1,23	
2	3		2,33

3	43		2,58
4	42		3,17
5	53		3,23
Sig.		1,000	,159

Publication of books or book chapters				
HSD Tukey[a,b]				
Articles as first author	N	Subset for alpha = 0.05		
		1	2	3
2	3	1,00		
1	56	1,20	1,20	
5	53	1,49	1,49	1,49
3	43		2,07	2,07
4	42			2,43
Sig.		,695	,148	,100

International cooperation articles			
HSD Tukeya,b			
Articles as first author	N	Subset for alpha = 0.05	
		1	2
2	3	1,00	
1	56	1,13	
5	53	1,30	1,30
4	42		2,19
3	43		2,30
Sig.		,927	,059

Table 5: Mean and standard deviation for the indicators of the SCIENTIFIC RESULTS subdimension. Questionnaire for teachers

Indicators	Mean ± SD
Citation by other researchers	2,50±1,202
Co-authorship with students	2,39±1,592
Disclosure at congresses	2,91±1,358
Research tutoring	3,50±1,395
Basic level research consultancy	2,24±1,333
Execution of research projects	2,98±1,441

Own Elaboration (Daher J, 2019) n = 197 teachers

Regarding the opinion of the teachers regarding the indicators of the scientific results sub-dimension, table 12 shows the mean and SD scores obtained.

When inquiring about the citations of their articles by other researchers and the articles published together with the students, the score obtained was 2.50 ± 1.202 and 2.39 ± 1.592 respectively, which is at a medium level. In scientific research at the Faculty of Medical Sciences there has been a separation between teachers and students, the former may not give the value and importance of the latter as enhancers of research. Bascó, 2015, in his research, states that the success of student research lies in a good preparation or training of teachers and in adequate motivation, promotion and accompaniment of students with effective tutoring processes, in the space conceived for the Carrying out this activity, which has features that favor a guiding teaching practice, which guides the preparation of students from the performance of strategic tasks, for the appropriation of the knowledge, skills, habits and values that must characterize their research performance . These results are similar to those obtained by González Saldsaña J, 2017 who refers in his research that the largest number of articles belong to graduates as the first author, followed

by teachers. No participation of undergraduate students is observed in this section, the activity of students being limited to joint participation with teachers or graduates.

Regarding the dissemination of research results in national and / or international congresses, the mean and SD obtained was 2.91 ± 1.358, medium level, this is an element to consider and improve in the faculty, the frequency of events has decreased considerably in the last year (2019), as authorities change, they are no longer planned as often as a year ago. Scientific dissemination requires the development of new strategies or the adaptation of models implemented in countries of the region. It is important to implement new spaces and technologies that bring science closer to the community, such as new thematic museums or open laboratories; and the improvement of capacities in researchers and scientists for the adequate dissemination and effective communication of their research results. (Franco R, 2018).

Regarding tutorials for undergraduate, master's and / or doctoral research and other basic level research, the mean and SD were 3.50 ± 1.395, and 2.98 ± 1.441 respectively, the appointed teachers have assigned work of degree for their advice or tutoring, this is an opportunity for teachers to enhance their knowledge in scientific research. On the other hand, advising on student research projects is not a satisfactory aspect in the Faculty of Medical Sciences. The mean and SD obtained was 2.24 ± 1,333, which corresponds to a medium level. There are very few teachers who are motivated to incorporate their students into integrative projects of knowledge or research hotbeds. The teacher plays a very important role in the productivity and development of the research hotbeds, he must be able to build academic knowledge through research. Formative research coupled with research hotbeds promotes autonomous, creative learning, l. (Villalba Cuéllar JC and González Serrano A, 2018) Projects are a way to develop competencies in students as well as investigative skills such as: planning, organizing and carrying out a common task in real environments. Thus, they are organized into work teams, assume individual and group responsibilities, carry out inquiries or investigations, solve. (Arias Sandoval L, 2017).

The teaching staff must be a facilitator in the development of capacities, skills and abilities of the student body, promoting collaborative and experiential work; In this sense, the role of projects can be of vital importance in pedagogical mediation activities, inside and outside the classroom, since it is learned through socialization, teamwork and, above all, problem solving through research. (Arias Sandoval L, 2017)

Table 6: ANOVA of the indicators of the scientific results subdimension

		Sum of squares	gl	Mean quadratic	F	Sig.
Citation by other researchers	Between groups	129,239	4	32,310	40,280	,050
	Within groups	154,010	193	,802		
	Total	283,249	197			
Disclosure at congresses	Between groups	151,655	4	37,914	34,684	,010
	Within groups	209,878	193	1,093		
	Total	361,533	197			
Research tutoring	Between groups	229,602	4	32,400	24,721	,012
	Within groups	251,647	193	1,311		
	Total	381,249	197			
Basic level research consultancy	Between groups	245,549	4	23,887	18,145	,030
	Within groups	252,756	193	1,316		
	Total	348,305	197			
Research projects	Between groups	178,027	4	44,507	37,328	,006
	Within groups	228,927	193	1,192		
	Total	406,954	197			

Table 6- shows the result of the Anova test carried out on the indicators of the scientific results subdimension, observing that there are no significant differences between them, since the p-value obtained in all cases was greater than 0.001.

When analyzing the opinion of teachers in relation to scientific production, valuable information was obtained related to the need to increase the number of publications in high-impact journals as well as in regional ones, increase the number of articles with international cooperation, and the number of patents, increase the number of publications with students, increase the dissemination of scientific results in national and international conferences.

The behavior presented could be influenced by the training of the teaching staff, since the number of teachers with a PhD degree is insufficient, although an increase in the number of teachers currently studying doctorates has been noted, this could improve scientific production in the faculty. The time of dedication could also be influencing these results, most of the teachers are part-time so they dedicate few hours to scientific research.

In summary, the analysis of this objective 2 offers an important contribution to the elaboration of the model for the strengthening of scientific production given by the need to increase the participation of teachers in research projects, in research groups, in scientific societies. On the other hand, the implementation of training is an imminent need to increase knowledge in research methodology and scientific writing.

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CONFLICT OF INTEREST

The author have declared that no competing interests exist.

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