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USERS' PERCEPTION REGARDING SCIENTIFIC PRODUCTION IN THE FACULTY OF MEDICAL SCIENCES

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ABSTRACT

Higher Education Institutions in all regions must submit to internal and external evaluations carried out with transparency, carried out by independent experts. In the CEAACES evaluation model, research is included as one of the most important processes within university management. An evaluation was carried out at the University of Guayaquil in 2013, being evaluated in category "D". The scientific production of the FCM was 2%, it ranked last in all the criteria, and it did not meet the requirements for accreditation, due to the tiny percentage that was maintained. Users' perception regarding scientific production is very important for the faculty of medical sciences.

1. INTRODUCTION

Scientific production is an indicator of the quality of processes in the university environment, so it must be increased by virtue of the results of the work carried out by research teachers and studentsthe identification of the perception of the users regarding the scientific production, which together it will allow to establish the strategies to propose the strengthening model in this area. Theoretical and empirical methods will be used, within the former: deductive and within the latter: observation, interview, survey and questionnaire. The development of a model for the strengthening of scientific production within Research Management is proposed as a way to establish mechanisms for the dissemination of researchers' results

According to goal objective about identify the perception of teachers, students and graduates of the Faculty of Medical Sciences of the University of Guayaquil regarding scientific production

Table 1: Mean and standard deviation for the indicators of the USER PERCEPTION DIMENSION on scientific production

Subdimensions	Mean ± DS
Teachers' perception	2,49 ± 1,274
Student perception	3,61 ± 1,330
Perception of graduates	2,79 ±1,241

Own Elaboration (Daher J. 2019)

Table 1.- shows in a general way the perception of teachers, students and graduates, according to the mean score obtained from the responses given by the actors participating in the study; As can be seen, the means and SD obtained are between the medium levels (2 to 3.99) and low (1 to 1.99). Which denotes that there are shortcomings in the Faculty of Medical Sciences regarding the perception of users about scientific production. The results obtained for each subdimension and respective indicators are detailed below.

Below is the analysis of the indicators of the subdimension perception of teachers on scientific activity in the Faculty of Medical Sciences.

Table 2: Mean and standard deviation for the indicators of the subdimension Perception of The Scientific Activity of Teachers

Indicators	Mean ± SD
Training on student scientific activity	2,90±1,264
Training on writing scientific articles	2,48±1,264
Budget allocation for publishing	1,72±1,039
Laboratory operation	1,32±,843
Training for project development	1,66±1,050
Participation in research networks	3,11±1,508
Participation in scientific societies	2,49±1,198
Accompaniment in the development of research projects	2,39±1,592
Budget allocation to execute projects	2,91±1,358
Motivation towards research.	3,48±1,409
Knowledge of the lines of research.	2,24±1,333
Disclosure of magazines to publish	2,94±1,441

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

Regarding training on student scientific activity and on writing scientific articles, the mean and SD obtained were 2.90 ± 1.244 and 2.48 ± 1.264 respectively (medium level), which denotes that the training received by the students is insufficient. teachers in these topics, on the other hand training for research projects was also shown at a low level 1.66 ± 1.050. These results differ from those published by Mendoza Valladares, J, L) and Ruth Roux 2016) who refer that the continuous professional development of teachers is considered a fundamental piece for the development of countries. Starting from the understanding that teachers are the ones who train future members of a society by interacting directly with students, it is recognized that their continuing education is crucial to strengthen the development of society.

The development of policies and strategies for continuous professional improvement not only allows teachers to stay at the forefront and continue with their preparation throughout their careers, but also helps teachers offer quality academic and research services that favorably influence the training of students (Mendoza Valladares, J, L and Ruth Roux 2016).

The training of trainers program established at the university does not include the subject of writing scientific articles or student scientific activity, this program includes the subject of preparing degree projects, despite these, this does not justify the poor teacher improvement in this area .

When inquiring about the budget allocation and the operation of laboratories and physical spaces for research, levels were obtained below 1.72 ± 1.039 and 1.32 ± .843, which indicates that there are serious deficiencies in this area, on the other hand the allocation of budget to execute the projects obtained an average of 2.91 ± 1.358, these data behave in a similar way to the investigation entitled Perception and attitudes towards scientific research,

(Ortega Carrasco, RJ, 2018) who obtained as a result that less than 20% of those surveyed consider that their faculty has infrastructure suitable for scientific research, which has been significantly influenced by the lack of budget allocated for research.

Participation in research networks and scientific societies was another indicator to take into account, the mean and SD obtained were 3.11 ± 1.508 and 2.49 ± 1.198, medium and low level respectively, in these indicators it is necessary to point out that constitute a flaw today. The participation of teachers in scientific societies is very scarce. These results coincide with González SJ, 2017 who, in a study entitled Scientific production of the medical school of a Peruvian university in SCOPUS and Pubmed, suggests that the scarce scientific production can be explained by a lack of collaboration networks between institutions and researchers, the shortcomings in the training of students and teachers on research topics, the low availability of research funds and the precarious research culture. The support in the development of research projects as well as the budget allocation for them obtained an average of 2.39 ± 1.592 and 2.91 ± 1.358 (medium level) respectively, which denotes that the support given to them is insufficient. performs the teachers for the development of research projects by the department's research department, as well as the budget allocation, both elements are essential to achieve quality scientific activity.

On the other hand, the motivation towards research obtained an average of 3.48 ± 1.409, the teachers in many cases are motivated, which could negatively influence the insufficient knowledge in research methodology that in some cases exists. Knowledge of the lines of research and the dissemination of the journals in which to publish obtained a mean of 2.21 ± 1.333 and 2.94 ± 1.441 (medium level) respectively. The need for a greater socialization of the lines of research and of the journals where to publish in the Faculty of Medical Sciences is notorious.

In the results obtained when surveying the teachers, the time of dedication could have influenced, since the highest percentage was represented by part-time teachers, a total of 97 teachers for 49.2%. These teachers have less time dedicated to research activities, which may be an influencing factor in these results. On the other hand, a total of 57 part-time teachers had a master's degree and 40 were specialists, which also at the author's discretion could affect scientific production.

Table 3: Anova of the indicators of the teachers' perception subdimension

ANOVA						
		Sum of squares	gl	Mean quadratic	F	Sig.
Training on student scientific activity	Between groups	52,344	4	13,086	9,633	,000
	Within groups	260,824	193	1,358		
	Total	313,168	197			
Training on writing scientific articles	Between groups	23,994	4	5,999	3,983	,004
	Within groups	289,153	193	1,506		
	Total	313,147	197			
Laboratory operation	Between groups	36,830	4	9,208	17,268	,000
	Within groups	102,378	193	,533		
	Total	139,208	197			
Training for the preparation of projects	Between groups	46,431	4	11,608	13,127	,000
	Within groups	169,782	193	,884		
	Total	216,213	197			
Participation in research networks	Between groups	26,072	4	6,518	2,983	,020
	Within groups	419,471	193	2,185		
	Total	445,543	197			
Participation in scientific societies	Between groups	14,138	4	3,534	2,541	,041
	Within groups	267,101	193	1,391		
	Total	281,239	197			
Accompaniment in the development of projects	Between groups	37,303	4	9,326	3,898	,006
	Within groups	459,377	193	2,393		
	Total	496,680	197			
Budget allocation to execute projects	Between groups	33,324	4	8,331	4,874	,011
	Within groups	328,209	193	1,709		

	Total	361,533	197			
Motivation towards research	Between groups	19,325	4	4,831	2,508	,043
	Within groups	369,863	193	1,926		
	Total	389,188	197			
Knowledge of the research lines	Between groups	33,694	4	8,423	5,141	,001
	Within groups	314,611	193	1,639		
	Total	348,305	197			
Disclosure of magazines to publish	Between groups	1,402	4	,350	,166	,956
	Within groups	405,867	193	2,114		
	Total	407,269	197			

Own Elaboration (Daher J. 2019)

When analyzing the ANOVA applied to the indicators of the teachers' perception subdimension, it can be observed that there are statistically significant differences in the indicators: training on student scientific activity, operation of laboratories and training for the preparation of projects, since the results were be less than 0.001. The following is Tukey's test for these indicators

Below are the results of the instrument applied to students to inquire about their perception regarding student scientific activity in the Faculty of Medical Sciences.

Table 3: Mean and standard deviation for the indicators of the PERCEPTION OF SCIENTIFIC ACTIVITY subdimension. Questionnaire for students

Indicators	Mean ± SD
Training for project development	3,77±1,292
Training on writing scientific articles.	3,66±1,280
Budget allocation for publishing	3,38±1,341
Laboratory operation	3,52±1,441
Accompaniment in the development of research projects	3,64±1,335
Budget allocation to execute projects	3,39±1,373
Knowledge of the research lines	3,64±1,310
Motivation towards research.	3,81±1,280
Disclosure of research activities	3,85±1,265
Availability of time for research	3,56±1,347
Disclosure of magazines to publish	3,46±1,387
Empowerment of teachers of student scientific activity	3,64±1,312

Own Elaboration (Daher J. 2019) n = 370 students

The main results of this research indicate that there are weaknesses in the development of training for students to develop and present projects in instances of calls, as well as for the development of scientific articles. The mean value and SD obtained were 3.77 ± 1.292 (medium level) and 3.66 ± 1.281 (medium level) respectively. These results coincide with Sánchez M, 2015 who obtained the result that only five of the surveyed students have published a manuscript in a journal and only one has presented the results of his study in a scientific congress.

Thus, the results obtained in relation to the training to prepare projects and write scientific articles are similar to those obtained in a study entitled Perception and attitudes towards scientific research by Ortega Carrasco, RJ, 2018 in which the most important findings identified were: weaknesses in the development of capacities of students to present projects in instances of calls; few training related to project development, little participation in scientific dissemination events; little use of scientific articles by teachers in their chairs; as well as the need for greater emphasis on teaching the scientific method. There is also agreement with Molina, et al. 2008 who conclude that the training obtained in the undergraduate, directed to the writing and publication process, is deficient and that it also presents limitations such as the lack of support and university training. This occurs despite the fact that the work they do is considered to be of acceptable quality to be published, and they have adequate training in research methodology

In relation to the laboratories and physical spaces for research and the allocation of the budget to publish, a mean and SD of 3.52 ± 1.441 and 3.38 ± 1.341 were obtained, both at a medium level, so it is observed that there are deficiencies according to what the students refer in the questionnaire applied to them since the infrastructure destined for this purpose is not enough. These results coincide with Ortega Carrasco, RJ, 2018, who in his research entitled Perception and attitudes towards scientific research obtained as a result that in terms of infrastructure and networks, students responded by 42% that the faculty has a research department, however , less than 20% of those surveyed consider that their faculty has adequate infrastructure for scientific research, and only about 30% of students indicate that their institution has links with other organizations to carry out scientific research. At the institutional level, the promotion of the research unit is insufficient, and above all, of linking research activities with students.

When inquiring about the students' knowledge of the research lines, a mean and Ds of 3.64 ± 1.310 were obtained, a medium level, which denotes that the dissemination of the research lines by the teachers is still insufficient. The disclosure of the same should be promoted so that any investigation that is carried out is framed within a line of investigation. According to Fernández Espinosa and Villavicencio Aguilar (2017), research must remain as a transversal axis during the training of undergraduate students, bringing them closer to research from the first years to enhance their investigative skills.

In this regard, Álvarez Icaza, 2011 mentions that "one of the main problems of providing students with an experience in research and lines of research, the journals where to publish, as well as the research activities carried out in the faculty, which contributes to increasing the motivation of students towards scientific activity.

Regarding motivation for scientific research, a mean 3.81 ± 1.280 was obtained, a medium level, it is evident that the motivation of students in this aspect is not enough. These results are similar to those obtained by Bascó, 2015, who in his study, when exploring whether students had received motivation and tutoring offer, those in VII and VIII semesters expressed having received this type of tutoring and motivation from teachers, with a statistical significance ($p < 0.05$). This data is also similar to that obtained when inquiring from teachers about this indicator. Both want to carry out research, which in many cases could have a negative influence is insufficient knowledge, limited time and limited availability of resources.

Regarding the dissemination of research activities, an average of 3.85 ± 1.265 was obtained, these data are similar to a study carried out by Ortega Carrasco, RJ, 2018 where just over 14% of students know the calls related to scientific research offered by the National Council of Science and Technology (CONACYT), data that reveals the ignorance of the multiple opportunities offered by the most important institution in terms of promoting scientific research in the country, in turn this may be limiting the motivation to take research as a career to follow due to lack of information

The availability of time for research was another investigated indicator in which the mean and SD was 3.56 ± 1.347, for a medium level, which indicates that students do not have enough time for scientific activity according to what refer in the questionnaire. This result coincides with a study carried out by Hernández and Losada, 2017 in which these authors state that one of the factors that influence the scarce student scientific production is that students have little time to investigate, due to the large number of tasks oriented by teachers and the hourly load that is very intense. These results also behaved very similarly to those of a study conducted by Molina et al. (2008) in which it was empirically demonstrated that 81.2% of students agreed that the main limitation identified to achieve a scientific publication is the lack of time and teaching support.

These results are similar to those obtained in a study (Yuri CR, 2018) on the limitations that students find related to scientific production and research, 61.1% consider that the main obstacle is the lack of adequate advice and 20 , 8% due to lack of time. The majority (38.2%) consider that an appropriate strategy would be to increase the amount of time allocated to research courses to improve student scientific production. A serious problem in scientific production is that many students have never participated in scientific activities. 50% of students with no research experience reported having problems or taking a long time to research. These results could be influenced by the fact that the largest number of students surveyed were between the second and third semesters of their career. For 25.6% and 21.8% respectively. From the fourth semester onwards, 35% of the students are grouped, who are assumed to have already received the contents of Research Methodology.

In relation to the empowerment of teachers and the support in the preparation and execution of research projects, the average obtained was 3.64 ± 1.312 and 3.39 ± 1.335, an average level respectively in these indicators, the participation of teachers in scientific activity, which is similar to the data of a study carried out by Júnior Ortega R, et al., 2018.) in which more than 55% of the respondents indicate that their teachers express confidence in the

abilities of the students to carry out research, as well as more than 37% of the professors, motivate and encourage them to carry out research, accompanying them from their chairs in carrying out research projects. These results are also similar to those reported by Taype-Rondán et al. (2014), who show a low participation of students in publications and projects not only in Peru but throughout Latin America.

According to Hilarraza (2012) there is a close relationship between the student's attitude and the role of the teachers responsible for teaching, since they can take advantage of their knowledge and their own research experience as a didactic resource. It is currently a challenge to, Through good articulations of this type it will be possible to generate new researchers of great potential who in the future will be able to mentor many others, building a scientific community through this virtuous circle.

Table.4: Anova of the indicators of the subdimension perception of students

ANOVA						
		Sum of squares	gl	Mean quadratic	F	Sig.
Training on project development	Between groups	388,441	45	97,110	164,096	,000
	Within groups	216,003	365	,592		
	Total	604,443	370			
Training on writing scientific articles	Between groups	405,904	5	101,476	176,286	,000
	Within groups	210,106	365	,576		
	Total	616,011	370			
Laboratory operation	Between groups	462,703	5	115,676	139,059	,000
	Within groups	303,624	365	,832		
	Total	766,327	370			
Accompaniment in research projects	Between groups	433,502	5	108,375	176,619	,000
	Within groups	223,969	365	,614		
	Total	657,470	370			
Budget allocation to execute projects	Between groups	503,585	5	125,896	239,150	,000
	Within groups	192,148	365	,526		
	Total	695,732	370			
Knowledge of the lines of research	Between groups	380,453	5	95,113	137,210	,000
	Within groups	253,017	365	,693		
	Total	633,470	370			
Motivation towards research	Between groups	342,141	5	85,535	118,882	,010
	Within groups	262,616	365	,719		
	Total	604,757	370			
Disclosure of research activities	Between groups	287,567	5	71,892	86,730	,050
	Within groups	302,552	365	,829		
	Total	590,119	370			
Availability of time for research Between groups	Between groups	405,993	5	101,498	140,821	,000
	Within groups	263,077	365	,721		
	Total	669,070	370			

Dissemination of journals to publish	Between groups	466,454	5	116,613	174,789	,000
	Within groups	243,516	365	,667		
	Total	709,970	370			
Empowerment of teachers of student scientific activity	Between groups	373,393	5	93,348	130,146	,000
	Within groups	261,799	365	,717		
	Total	635,192	370			

Own Elaboration (Daher J. 2019) n =370 students

Next, the results obtained in the questionnaire addressed to graduates about their perception of student scientific activity at the Faculty of Medical Sciences are analyzed.

Table 5: Mean and standard deviation for the indicators of the PERCEPTION OF SCIENTIFIC ACTIVITY subdimension. Questionnaire for graduates

Indicators	Mean ± SD
Training on writing scientific articles	3,22±1,209
Training for project development	3,89±1,253
Budget allocation for publishing	1,53±,910
Laboratory operation	1,22±,705
Accompaniment in the development of research projects	3,61±1,546
Budget allocation to execute projects	2,90±1,212
Disclosure of magazines to publish	3,12±1,768
Disclosure of research activities	3,23±1,263
Availability of time for research	3,81±1,395
Knowledge of the research lines	1,94±1,227
Functioning of research groups	3,54±1,458
Existence of agreements or strategic alliances	3,34±1,273

Own Preparation (Daher J. 2019) n = 309 graduates

When inquiring in the graduates about training in writing scientific articles and for the preparation of projects (table 16), the data obtained were 3.22 ± 1.209 and 3.89 ± 1.253, which is at an average level, this result is similar to that obtained in the questionnaire for teachers and students in relation to these indicators. In the Faculty of Medical Sciences, training has been carried out in writing scientific articles and in the preparation of projects, but they have not been sufficient to achieve an increase in scientific production in the faculty.

Regarding the budget allocation for publishing and for the elaboration of projects, and the operation of laboratories and other physical spaces for research, the mean and SD obtained were 1.53 ±, 910, 2.90 ± 1.212 and 1 , 22 ±, 705 in each case, these data coincide with a study carried out in Peru, (Nieto Gutiérrez, W, 2018) in which it was obtained as a result that only of the 57 institutions evaluated only six universities that have medical schools offer incentives for scientific publication, of which only two grant this bonus considering the quartile of the journal and three include students as recipients of these benefits.

Although financial resources per publication are necessary to increase the scientific production of the university, some studies have described that they can also cause a decrease in the quality of published works (Opstrup N., 2017), this could happen with higher frequency in developing countries (Aboal D, Tacsir E, 2017).

The disclosure of the journals where to publish, the disclosure of the research activities and the availability of time to publish had a mean and SD of 3.12 ± 1.768, 3.23 ± 1.263 and 3.81 ± 1.395, average level in each case. These indicators continue to be problematic today. The magazines to publish are available on the internet, and yet they are not well known. At present in the Faculty of Medical Sciences there has been a large-scale decrease in research activities, there are no longer scientific events in which teachers could disseminate the results of their research. The scarce time to do research is still a problem, more and more is the administrative load of the teachers, to which is added the large number of teaching hours that are assigned to the research professors. It is necessary to highlight

the similarity of the results obtained when inquiring about the indicator: dissemination of the journals where in the teachers and graduates.

Knowledge of the lines of research was 1.94 ± 1.277, for a low level, which denotes that the graduates have no idea what the lines of research are. The lines are disseminated through different media, but it is necessary to promote their socialization, a task that corresponds to teachers or authorities. The functioning of the research groups obtained a mean and SD of 3.54 ± 1.458, although it is at an average level in the Faculty, there are no research groups formed. Now, recently, two research groups have been formed. For their part, the existence of strategic cooperation agreements or alliances

International obtained a mean and SD of 3.54 ± 1.273. These aspects result in a deficient scientific production, which coincides with the reality within a Faculty of Dentistry in Peru; in which according to the study of César Quiroz, C; 2017) of a total of 269 theses supported after 10 years, only 35 (13%) were published in national and international scientific journals. This scarce scientific production after so long is the reflection of a poor scientific culture and encouragement towards the publication of scientific articles.

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CONFLICT OF INTEREST

The author have declared that no competing interests exist.

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