



## El catedrático como investigador científico en el Ecuador The university professor as a scientific researcher in Ecuador

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### RESUMEN

Las líneas institucionales de investigación científica del Ecuador están estrechamente relacionadas con los ejes problemáticos de América Latina en el impacto de la globalización en la educación superior. Internet y la comunidad científica ecuatoriana están proporcionando diferentes resultados en diversas líneas de investigación; Por ejemplo, cultura, democracia y sociedad. La globalización y la internacionalización en la educación superior afectan a universidades enteras en el Ecuador. Por lo tanto, el presente trabajo se dirige al análisis del estado actual de las cosas del profesor universitario de nuestro país. Para este propósito, se ha recurrido a varias fuentes de información para producir un trabajo integral desde varias perspectivas, sin tratar de estructurar las consideraciones para obtener algunas conclusiones con un reclamo de objetividad y optimizar los recursos disponibles en Ecuador para pasar al contexto científico global.

**Palabras Clave:** investigación científica, globalización e internacionalización, catedrático, líneas de investigación

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**ABSTRACT**

The institutional lines of scientific research of Ecuador are closely related to the problematic axles of Latin America in the impact of globalization on higher education. The internet and Ecuadorian scientific community are providing different results engaged in various lines of research; for instance, culture, democracy and society. The globalization and internationalization in higher Education affect whole Universities in Ecuador; therefore, the present work is routed to the analysis of the current state of things of the University professor of our country. For this purpose, the authors have resorted to various sources of information to produce a comprehensive work from various perspectives, without trying to structure considerations getting some conclusions with a claim to objectivity and optimize the resources available in Ecuador to move into the global scientific context.

**Keywords:** scientific research, globalization and internationalization, professor, research lines

**Introduction**

The University Professor in Ecuador Historical and Reflexive approach. How does the Ecuadorian University Professor do Research? The question is a little complex, and linked to some conflicts, tensions and doubts. The average income of an Ecuadorian professor is US\$ 26,400 per year depending on the subject field of the expertise Arts and Humanities, Science, Health, Engineering and architecture, and Law.

Is Ecuador increasing the Research Production?

Ecuador has many cities of different sizes and particular programs towards research, nevertheless, the government institution called: Secretariat of Higher Education SENESCYT issued the regulation to certify, register and categorize professionals willing to carry out research work in Ecuador for careers of public interest, fixing rules according to The National Plan for Development which established research parameters of science and technology.

Objectives.

The objectives of this paper are harmoniously integrated into a 'structured whole'. As the first objective, it should be noted that the language being used is as accessible as possible, taking into account that, as requisites for Scientific Research, there are terms that are impossible to avoid. To this end, a variety of sources have been used to extract the most relevant concepts and to expose them in a language that is accessible to professors of the Ecuadorian Universities.

Another objective is constituted by the fact that this work has essentially used electronic reporting which is necessary to make this information accessible to the scientific community and to university professors in Ecuador at the global level. To be more explicit in this regard, this work is intended to provide an intrinsic motivation for Ecuador to join the 'World's Scientific Community'.

The development of research production in Ecuador.

It will be a long and complex process, but it is necessary to begin to publicize the results of the few researches of the university teachers and to encourage adequate exploration of the current standards of the 'Methodology of Scientific Research'. In this 21st century, scientific knowledge and technological advances are not yet part of the everyday dictionary of Ecuadorian society. The connection between technology and computer is uncommon in the country (Pino, 2006).

It is essential to make explicit mention of the sources, besides being a requirement of the APA style with which the present work is developed; because it is necessary to respect copyright and give credit to those who have served as sources of inspiration. This is also intended to acknowledge the faculty-researchers of the Universidad de Guayaquil in Ecuador, whose works are cited here, with the express mention of their bibliography in the respective section of this paper and also, within the context of this work (DIPA, 2016). Considering the previous works and research on this subject being discussed, they are not many, but the few available are of very good quality. This paper begins by mentioning the need to explore a dissertation on scientific research in Ecuadorian universities. It should be noted that this thesis carries a detailed historical review; affirming the fact that 'until the 1970s, Ecuadorian universities were dedicated exclusively to teaching, with very little space for research; with little reading and even with very little literature and bibliography available'. There were few publications. For the most part, the 'Annals' of the universities and books of private initiative were produced at the historic basis of patronage" (Ayala 2015).

It is said that most of the texts available until the 1970s were limited to a few articles and some speeches revealed that the situation of 'Scientific Research' in Ecuador was quite precarious. Researches were carried out but they were limited to undergraduate theses that were repetitive and monotonous. At that time, most of the few original theses were from the area of law which was all too familiar, being referred to as part of the Ecuadorian culture. However, the scientific research ended with the same thesis, since lawyers once they graduate, were dedicated to the professional practice, and not involved in university teaching and policy. So, scientific research, in the strictest sense, was limited to timid assumptions; as was the case of some who were self-financing, for example, Jacinto Jijon and Camano in the areas of historiography and archaeology. As far as medicine was concerned, only the isolated case of Pablo Arturo Suarez stands out. In addition to undergraduate theses, dissertation was the only product of scientific research. But the most curious aspect was that the best-known works were of the advocates. Dr. Gabriel Cevallos Garcia was one of the most truthful historians and of greater prestige and scientific/literary strength of Cuenca, considered at the same time as one of the most remarkable Ecuadorian essayists of the twentieth century (Aviles, 2006).

Furthermore, another paper entitled 'University, Scientific Research and Development in Latin America and Ecuador'; in which can be noted, among other aspect, that resources that have been channeled towards the education sector have focused on the primary level neglecting higher education and transfer of scientific knowledge and technology.

This policy, which shifts to the marketplace the function of strengthening both higher education and developmental capacity in science and technology in support of the requirements for economic growth and social demands, has led to a chronic under-allocation of resources for universities; above all, weakening education at the post-graduate level, and the development of scientific and technological research (Larrea,2006). Note that, this paper also highlights the international inequalities in scientific and technological investment. It is clear that, in addition to the role of universities in the training of high-level human resources, they must satisfy the pressing and urgent need for the development of scientific and technological research. The obvious inequalities existing between North and South in science and technology are evident. Developed countries invest four times as much Gross Domestic Product (GDP), while twelve of these countries have ten times more researchers per million of the population than Latin America. So far, it seems that it was a study focused on Latin America and not Ecuador. Nonetheless, what is preached from our sub-continent, applies to our Ecuador.

This paper lays much emphasizes on the Ecuadorian situation, in that, it stresses that the inequalities in Latin America is overwhelming as well. Thus, Brazil for example, invests a proportion of its GDP (Gross Domestic Product) which is ten times greater than that of Ecuador, Peru and Colombia. While there are specific nations that stand out, as it is the case with Brazil itself, Argentina, Mexico, Chile, Cuba and Costa Rica; and the remaining countries, including Ecuador, having almost marginal figures. Another work which precedes the present one entitled 'The Actors of Change in the Reinvention of the Ecuadorian University: the Strategic Role of Academic Staff in the Transformation of Higher Education in Ecuador'; also placed a special emphasis on 'Research and Teaching'. It is evident, among other things, that since CONUEP (the defunct National Council of Universities and Polytechnic Schools) presented in due course, the research work entitled 'The Assessment of the Current Situation and Prospects for the Short and Medium Term' in the 80s, it was obviously stated already that 'the serious situation presented by the research development of the Centers of Higher Education was inextricably linked to the structural problems of academic institutions' (Minteguiga, 2013).

According to the data reported in this study, during the period between 1980 and 1988, 1,348 people undertook several research projects, of which 705 were advanced projects and 277 were concluded within the period. In summary and with regards to the subject of the works that have preceded this present one, it is apparent that these studies were of good quality according to this important brief history.

### **Development**

To reach the objectives of this applied research, it has been used a quali-quantitative approach which is developed in a three month period having personal interviews to deans and professors having structured questionnaires, also a twenty three question survey applied to 145 University professors from 5 different Ecuadorian Universities to evaluate four relevant factors that influence the research process in the Ecuadorian University which are: the number of publications obtained by professor, the conditions offer by Universities to do this practice, the support offered by different Universities, and the motivation. This quali-quantitative research will have two parts which will be developed at the same time: The first involved the interviews and the second one the surveys. There will also be two focus groups of professors separated in public and private Universities. The research will be run in a fourth month period, followed by a period of two months dedicated to the analysis and the socialization of the results.

A group of interested students and teachers will also help with the revision and validation of the data obtained and then there would be a socialization of the results obtained.

A method is understood as a sequence of successive steps, leading to a goal or goals. The present work has been focused on formulating proposals aimed at solving, in the future, the current state of things of the scientific researches of Ecuadorian professors. Considering that this is the most appropriate method to deal with the problem (the poor level of scientific research of university professors), since it is the path that leads to the achievement of the objectives. At the moment, 'some methods are common to many sciences, but each aspect of science has its own problems and therefore its own needs where it will be necessary to employ those modalities of the general methods more adequate to the solution of the specific problems' (Cerbero, 2017). It is important to note that, in terms of Scientific Research, 'method' means a set of processes that man must undertake during a research and demonstration of the truth. Moreover, the method is not invented since it depends on the object of the investigation itself.

The methodology of scientific research, it is not a matter of using a single method in a strict sense; it must also be taken into account that, this method of observation has been used. But the question now is what type of observation and for what is it used? The answer is very simple; the observation of the background and some situations, data and current statistics to plan future solutions. Regarding the current situation in Ecuador, the lack of research in universities highlights one of the most worrying, visible problems; and by the way, the reason why some of the universities were in the Category 'E' of Council of Higher Education

Nevertheless, the Ecuadorian university, through different government agencies, is investing in the search for new ways to encourage scientific research in the country's higher education institutions (Campi, 2012). However, there are conflicting opinions which try to ensure that a standardized measure at the global level consists of a number of professionals who obtain postgraduate degrees, such as Masters in

Sciences (M.Sc.s.) or Ph.D. in Philosophy (Ph.D.). These analysts show that the number is very high in Brazil, Colombia (5,000) and Venezuela (15,000) until a few years ago (when an economic crisis began in this country). Although in Ecuador the number hardly rises to 300, according to the data by the Foundation for Science and Technology of Ecuador. These analyses are not so optimistic, and have pointed out that, scientific production is done through 16 indexed journals and the volume of statistical data represents 1% of the scientific information generated globally. In Ecuador, the number of magazines available is not so much a problem, but their survival. Most of them do not survive due to lack of support from scientists who can publish them. Therefore, as long as research is not a state policy, the emergence of a generation of researchers will not be achieved. Science must be developed in all fields of human endeavor as it is the case in humanitarian sciences, making science the conclusion to the well-being of man (Ruiz, 2017).

This paper is intended to propose strategies for the implementation of scientific research in the whole university community of Ecuador. Therefore, Ecuadorian professors must prepare themselves in terms of the Methodology of Scientific Research, for which the State and the universities themselves must allocate the necessary resources.

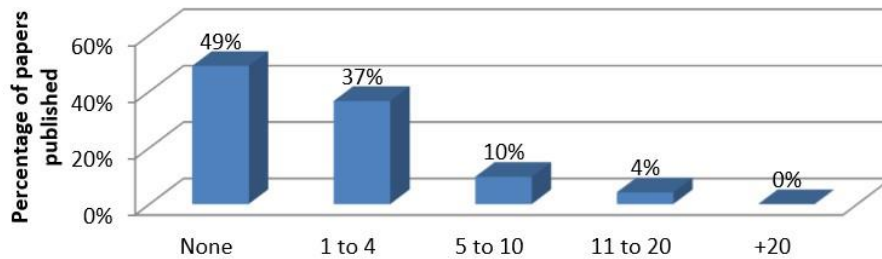
The university professors should make students aware that the application of processes and methods of Scientific Research should become a common way of proceeding within the teaching-learning process. For this objective to be achieved, it is necessary that the teacher himself is sufficiently prepared in the subject of the Methodology of Scientific Research. Another integral element of the strategy is constituted by the fact that the teaching staff of the Universities of Ecuador and all the higher educational centers are adequately prepared in the already crucial subject of the technologies to motivate their students to become involved in technological innovation.

In addition, there should be campaigns to create a university scientific council in all the higher educational centers of the country to manage the scientific production of teachers and students, as well as carrying out diverse research. Among the Universities surveys, the Universidad de Guayaquil already has the so-called DIPA (Directorate of Research and Academic Projects), although there is still a long way to go.

Another element of the comprehensive strategy proposed is that the students manage their degree thesis in the cognizance of the relevant area and under the supervision of the teachers. Thus, the students would be enriched with the information collected by them themselves.

**Results**

Question No. 1 How many papers have you published in indexed magazines?

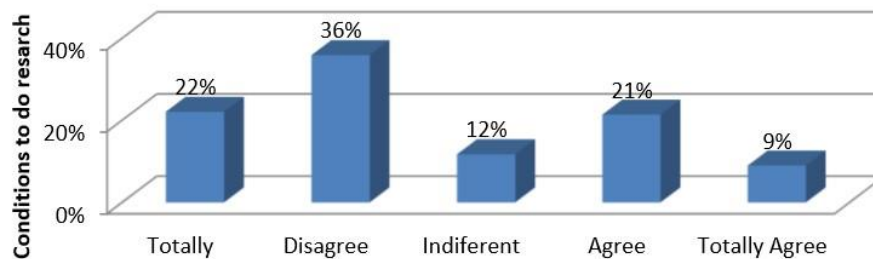


**Figure 1** Quantity of paper published  
Source: The Authors

Figure 1 shows that 49% of professors do not have any publications, whereas 51% have some publications.

**Question No. 2**

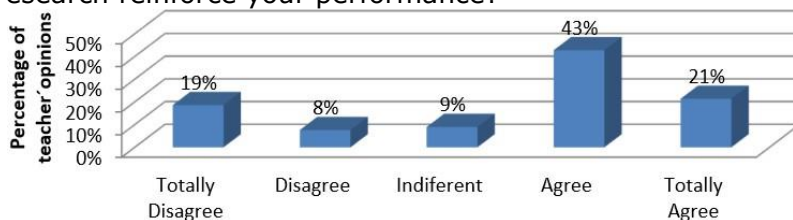
Does the University offer good condition to do research ?



**Figure 2.** University conditions to do research reserch

Figure 2 indicates that 30% of the University professors agree with the conditions that the University offers to do research, whereas 58% disagree, and 12% are indifferent. The 58% do not consider that the University where they work provides good conditions to applied or scientific research.

**Question No. 3**  
Did the research reinforce your performance?

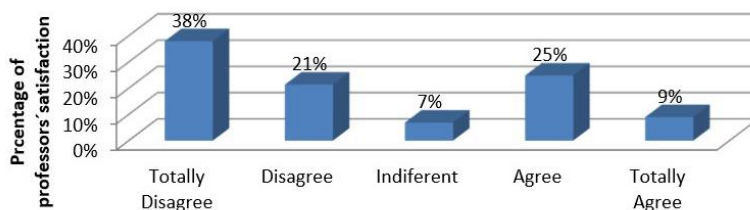


**Figure 3** The research improve my teacher abilities  
Source: The authors

Figure 3 Points out that 64% of the Ecuadorian professors surveyed agree that with the support of the Universities where they work and their performance has been reinforced; 27% disagree, and 9% are indifferent.

**Question No. 4**

Do the different University Programs satisfy all your requirements as University professor?



**Figure 4.** Professors' preparation offered by University are satisfied  
Source: The Authors

Figure 4 shows that a group of 34% of the professors agree that their universities satisfied their requirements related with their professional performance, 59% disagree, and the 7% are indifferent.

There have been considering in the survey four relevant factors that influence positively in the research process in the Ecuadorian University, these are: the number of publications obtained by professors, the conditions offered by Universities to do this practice, the support offered by different Universities, and the motivation of the professors about research community.

Based on the findings of other researchers like Field (2003), as stated during the introduction and development of this paper, that although the Ecuadorian Universities already have some interesting research program; the university community, in general in Ecuador is still in an infancy state when it comes to the implementation of



programs that can place them in a scenario where the country becomes known at a national, regional and much less, global level. Likewise, they do not have adequate logistics and infrastructure to accommodate all the immense amount of scientific research that is carried out abroad.

As regard suggestions for new research possibilities this time, several proposals are formulated in a comprehensive approach which in the future may assist other Ecuadorian researchers to advance projects based on these proposals. At the moment, the results of the proposals that are implemented in the universities of Ecuador will be seen as they are developed.

Thus, a new state of affairs would lead to new research based on the programs being structured. Within what is called the "Research Cycle", there are important factors that can come from two types of sources, one of them being the Empirical Sources: the observation of the researcher himself or the results of previous investigations of other researchers. Here is what has been done: research based on previous research. In the future, others will be able to carry out works based on the present investigation.

### **Discussion**

The quantity and interest about scientific research and publishing, such as the satisfaction of the research professor have been explored to improve the reinforcement of this activity in the Ecuadorian University.

The results of this research study stay that although Ecuadorian professors have different kind of programs created to develop scientific research most of them do not feel satisfied, or believe that publishing is not for them, therefore the number of publications of Ecuadorian professors is really low, and the research activity is almost null even though Ecuador Secretariat of Higher Education SENESCYT tries to help researches in their activities.

Another important contribution of this paper is that the activities involve with classes is what professors surveyed enjoy more than the research activities.

### **Conclusion**

Scientific research, which is understood as a process of reflection, control and criticism that works from a system and intends to provide new facts, data, relations or laws in any field of scientific study is gradually developed in Ecuador, although there is still a long way to go. The Directorate of Research and Academic Projects (DIPA) has been working at Universidad de Guayaquil of Ecuador. However, there is much to be perfected. Regarding the implications of the present study and its relevance in the different areas. Nevertheless, not all Ecuadorian universities have taken corrective measures to be part of the world's scientific community. To such effect, it has formulated a strategy which, if implemented, Ecuadorian universities, will serve as a basis to future research; because the scientist should not seek to confirm the hypotheses but test them. An improper confirmation of the hypotheses

may lead to biased investigations, contrary to reliable research "(Docslide, 2015).

To sum it up, it is necessary to encourage the participation of the University community students and professors in congresses, seminars, symposia, conferences and discussions at both national and international levels, to make known their own progress and to learn about the progress of other Ecuadorian educational institutions.

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