

## Relevance study in the accreditation process of a university degree in the Ecuadorian context

Estudio de pertinencia en el proceso de acreditación de una carrera universitaria en el contexto ecuatoriano

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### Abstract

The analysis shows that the vast majority of countries frame their process of evaluating the quality of higher education based on standards, i.e. with areas, criteria and indicators adapted to local or regional contexts. It should be noted that the criteria of relevance, organization, professors, curriculum and students are common in many of the cases studied, while the other criterion holds that the analysis of quality should be done by models and through the use of variables and dimensions that tend to be more specific at the time of evaluation, regardless of the path chosen for the evaluation process, it is positive, from every point of view, to know in what conditions an institution is in, even more so if the field is educational and also because they direct us to the decision making and actions that must be taken after being notified of the result, it is possible after the process to choose the appropriate corrective measures that will be applied in the improvement plan. In addition, this article considers in a practical way the author's experience in several years as director of the career Pedagogy of

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Experimental Sciences of Mathematics and Physics at the University of Guayaquil, Ecuador, and that he is immersed in evaluating each and every one of the criteria in the process of accreditation and educational quality assurance.

**Keywords:** Self-evaluation; quality; higher education; accreditation; relevance study.

## Resumen

Del análisis se vislumbra que la gran mayoría de países enmarca su proceso de evaluación de la calidad de la educación superior basados en estándares, es decir con ámbitos, criterios e indicadores adaptados a contextos locales o regionales. Es de anotar, que el criterio pertinencia, organización, profesores, currículo y estudiantes es común en muchos de los casos estudiados, el otro criterio sostiene que el análisis de la calidad debe hacerse por modelos y mediante el uso de variables y dimensiones que suelen ser más específicas al momento de evaluar, sin importar el camino elegido para el proceso de evaluación, es positivo, bajo todo punto de vista, conocer en qué condiciones está una institución, más aún si el ámbito es educativo y además porque nos direccionan a la toma de decisiones y acciones que se deben dar después de ser notificados del resultado, es posible luego del proceso elegir los correctivos adecuados que serán aplicados en el plan de mejoras. Además, para el presente artículo se considera de manera práctica la experiencia del autor en varios años como director de la carrera Pedagogía de las Ciencias experimentales de las Matemáticas y de la Física en la Universidad de Guayaquil, país Ecuador y que el mismo está inmerso en evaluar todos y cada uno de los criterios en el proceso de la acreditación y aseguramiento de la calidad educativa.

**Palabras clave:** Autoevaluación; calidad; educación superior; acreditación; estudio de pertinencia.

## Introduction

The University of Guayaquil has been accredited by the CES up to the present date, from the consultations made to the general accreditation manager, it reports that the careers enjoy the Accreditation status; however, the academic vice rectorate has instructed the staff working in the internal accreditation office to carry out self-evaluation processes in order to be prepared for the visits planned by the CACES, a governmental institution, which has already conducted evaluations to three careers of our IES.

In a general context and from the reality based on the current facts of the place of research, it appears that the permanence of managers and directors of careers is positive because it allows to propose projects that can be completed within the period for which they were

appointed. Currently the regulations contemplate that directors can remain for up to two consecutive periods of 5 years each, it can be affirmed that the result in this question favors the accreditation process and the authorities are aware of this because in spite of changes of deans based on the end of term reports, which are analyzed, they decide in most cases to ratify the director in his functions.

The new knowledge society is strengthened by changes in education at all levels, in addition to knowledge and research, but fundamentally in higher education because it is the one that delivers to the States the generations of professionals equipped with skills to satisfy the labor world, which is becoming more and more demanding due to the permanent changes in terms of information and knowledge.

There are no magic formulas that can transform the system from one day to the next: profound changes require time. For this reason, it is necessary to seek the adherence of all the social actors involved and to adopt the necessary measures to guarantee the continuity of the programs over and above political conjunctures. (Seminara, 2018, p. 167)

For (Barros-Bastidas & Gebera, 2020) society's conviction that it is the State that should generate strategies and policies aimed at improving the quality of the State itself by providing its entities with evaluation and accountability processes, i.e. permanent monitoring, and it is higher education that should underpin this evaluation. That is, if it is the institutions of the higher education system who would be leading this process of quality control, it should first be to them who generate the raw material for the sustainable and sustainable development of a country and we refer strictly to the professionals graduated in the HEIs who are acting academically, professionally and ethically. (De zapata, 2013, p. 4).

The selected topic contains what in research is called critical mass, since it can be replicated to a large part of the higher education system in Ecuador, for this objective a functional strategy is designed that will optimize and strengthen the management of the internal commission in charge of the permanent self-evaluation and achieve the accreditation of the career Pedagogy of Experimental Sciences of Mathematics and Physics by the CACES. We must remember that accreditation helps us to be recognized by society and that it is validated in a short or medium period of time; furthermore,

the subject is justified because the fundamental objective of an evaluation in higher education is to raise its quality and improve the internal processes of the Higher Education Institutions (HEI). It should be noted that the criteria and indicators in an evaluation process are important and cannot be separated since they act as a whole.

Higher education must be able to respond to the difficulties faced by society as a whole and in particular be prepared to address the specific issues of a region, a country or a community. (Morresi and Arnaudo, 2014, p. 3).

The concept of quality is directly linked to the political, economic and social changes that are generated in different countries with a concrete character, that is, located in time and space. This makes it necessary to specify the criteria of efficiency, efficacy, effectiveness and exigency in the educational processes carried out by universities, which must be, in order to be consistent with their time, increasingly committed to society. (Suárez et al. 2007, p. 10).

This research establishes as a unit of thought the development aspects with the state of the art and the most relevant writings on the subject; a brief synthesis of the situational diagnosis or initial state of the object of research; the research methods applied to measurement instruments; the results or current state of the object of research, applying the functional strategy and validating the proposed solution with specialist criteria; and a conclusion with its respective recommendations.

From the state of the art of this topic, it is argued that the countries of the Caribbean, Central and South America, as well as Europe and the United States in their educational systems to evaluate quality processes apply a similar methodology, i.e. they incorporate in their models criteria, sub-criteria and standardized indicators, taking into account their own context, a reference in this regard is Spain in the Spanish state foundation created by the Ministry of Education and Culture, a way to make its actions transparent is to publish in each of its regions the results obtained in the education systems and subsystems. Such is the impact of quality evaluation in education that institutions such as UNESCO propose and incorporate actions for the 2030 agenda in education, one of which proposes among its objectives to guarantee access to education at all levels, as well as certifying that all stages are completed; another entity is the international institute for higher education in latin america and the

Caribbean IESALC, which promotes research on higher education, in all matters concerning the evaluation and accreditation of academic programs and institutions; another of the proposals is the development of a regional system of information, documentation and improvement of technological capacity in higher education.

This notion of accreditation implies full confidence in the autonomy of the accrediting body, since the acceptance of the results derives from the independence and transparency with which the evaluators appear before the university communities; any suspicion of an external political or economic power and outside strict academic criteria will compromise the legitimacy of any opinion and the possibility of institutional transformation. (Herrera and Aguilar, 2009, p. 33).

Accreditation, on the other hand, is the recognition granted by an accrediting body, which may or may not be governmental (although usually it is not), authorized and recognized, which formally states that an educational program of an educational institution has shown sufficiency in its structure, organization, operation, inputs, teaching processes, services, social and professional relevance and educational results; all in accordance with the standards, criteria, indicators and parameters agreed upon as adequate. (Silas, S/f)

When carrying out an evaluation of an educational institution, researchers focus on theoretical conceptions of quality in operational models that allow an empirical contrast. The relationship between theories on quality and criteria for its evaluation is so close that there are as many evaluation models as there are theoretical approaches. However, most of the works on the subject use models that start from one of these two approaches: rational/causal and interactive/contextual. Thus, it is possible to speak of research that addresses process-product variables from a causal approach and research that studies this type of variables with a contextual perspective (Camacaro & Jubilado, 2018, p. 5).

Mexico has the National Center for Higher Education Evaluation CENEVAL, an institution that is constantly updating and designing instruments to measure the quality of education. There are more and more institutions in our countries concerned about raising the quality of educational systems, this has a positive impact on HEIs because the results show that they comply with the standards established in the evaluation model. Among the areas considered for these processes are organization and management, in which we can

highlight some criteria such as continuous improvement, leadership, organization by processes, efficiency in information and communication, teamwork, social relevance of the institutional mission, relevance of the strategic and annual plan. The curricular design area includes criteria such as innovation, congruence with the graduate profile, thematic integration, contextualized learning. In the educational environment, the efficiency of libraries, laboratories and technological resources stands out; the sufficiency of physical space in classrooms, libraries and laboratories is also considered. A factor that is not so common is ergonomics, a complement to the educational environment is the timely delivery of supplies.

One of the areas with a high percentage of incidence in the evaluation corresponds to teaching competencies, which considers the following criteria: impact, sense of relevance, identification with the institution's mission, commitment to academic and professional development, effectiveness in communication, appreciation of the teaching profession, commitment to the exercise of university functions, pedagogical and managerial competencies. Pedagogical processes is another area in which criteria such as the internal consistency of the training plan, efficiency of the teacher training programs, student-teacher relationship, teaching staff workload stand out. And no less important, the area of social transcendence, which highlights criteria such as the social relevance of university extension programs, coverage of extension programs, coverage of teaching programs (De zapata, 2013, p. 8).

The culture of institutional evaluation should be instituted in the first instance with a self-evaluation that exposes in-house the shortcomings and strengths of the HEI, and then undergo the external scrutiny of the institution that the model or the system provides, of course, after agreeing to the implementation of an improvement plan with the sole purpose of achieving quality.

According to the Costa Rican SINAES (National System of Higher Education Accreditation), evaluation in the analysis of results in general terms, it should be remembered that there are two major areas of analytical production in the self-evaluation process: The characterization of the career and the evaluation of the career. (SINAES, 2011, p. 28).

In the context of higher education, the way to evaluate quality is definitely the selection of standards according to the reality and the educational environment of each country, which are in accordance

with the programs and the model to be applied by the institution responsible, only in this way will it be possible to establish the learning achievements reached in that HEI or if it will be necessary to carry out feedback processes. The results of the quality of education are the product of the analysis of all the edges that are presented in the different areas, it is for that reason that it should be treated as a whole and encouraging permanent communication with those involved in pursuit of meeting the objectives at all levels (Camacaro & Jubilado, 2018, p. 5).

Nowadays, due to the high demand of educational quality by future professionals to Higher Education Institutions and as a fundamental element for the accreditation of the university career, it is necessary the training based on professional and investigative competence, as essential elements for the integration to the labor area and the generation of new knowledge, The professional and investigative competence is that at the end of their academic studies the fact that a professional possesses knowledge and skills that allow him/her to efficiently solve professional problems does not make him/her competent. It is necessary that he/she manifests a motivation based on professional interests and values and has personal resources that allow him/her to function flexibly, reflexively, with initiative, perseverance and future perspective, all of which will result in a competent professional. Research competencies seek the autonomy of the person from the identification of the problem and are oriented towards the self-realization of the subject, as a way for the realization of a vital project, which satisfies the needs of the community (Rodríguez, 2018, p. 10).

Based on the professional competencies acquired by a graduate of any career, the accreditation process of the universities is causally established and constitutes the final point of a sequence of evaluative events and periodic follow-up of the fulfillment of the functions of the institutions of higher education (IES), through which the objective reality of the quality of the processes carried out in the institution is compiled. Through this process, society is shown the quality with which the professionals graduated from the universities are trained. (Herrera, 2018, p. 13).

The career does not have a training and curricular strengthening plan, this role is developed or centralized in the vice rectorate, a criterion that is not shared by the teaching staff. As a state-dependent university, the course does not have the capacity to make

acquisitions for infrastructure improvements; the university itself must enter the public procurement portal by law, which diminishes the autonomy that the academy should have by its nature. Inter-institutional agreements are few and networking has not been encouraged, all of which justifies the results of the research presented.

The participation of those involved in the accreditation process is partial, which affects the results of the self-evaluation that have been given so far, among the reasons the analysis of these results refers to the lack of tenured and full-time professors, 50% of the teachers are occasional or not tenured and most of them are part-time, the provisions for planning do not allow assigning them management; full-time teachers are often assigned double management, which is another impediment for the teacher to actively participate in both. The current regulations stipulate that the accreditation manager for each career must be a tenured, full-time faculty member.

The Higher Education Institutions (HEI) should form a support or accompaniment team for the academic units, especially those with many careers, and a schedule should be drawn up to establish meetings in which agreements are reached establishing the route to be followed. The internal self-evaluation committees, in turn, should incorporate an agenda that allows them to work on the criteria and sub-criteria, establishing clear guidelines to complete what is required in the dimensions and indicators established in the regulations of the university under study to ensure the accreditation of the career.

Six macro-dimensions were identified that countries seek to evaluate in university careers: a) career management, b) academic management (teaching-learning), c) infrastructure and services, d) university community, e) university welfare, and f) teaching-learning outcomes. (Acosta, 2016, p. 1271)

Based on the macro dimensions that must be established in each career self-assessment period, it is important and decisive to follow up on the implementation of the action plan that leads the monitoring and follow-up phase of the implementation of the action plan. This stage is dynamic in that it allows the introduction of any rectifications required by the plan itself. The results of the measurements should be compared with the values designated in the standards, whether they are specific to the career or external as a

dynamic and effective self-evaluation process (Borroto et al., 2004, p. 10).

## **Materials and methods**

The methodology of the present investigation starts from the qualitative approach and the scientific method that is by the observation of all the processes and unfulfilled activities of the internal self-evaluation and accreditation of the career Pedagogy of Experimental Sciences of Mathematics and Physics at the University of Guayaquil in the city of Guayaquil, Republic of Ecuador. In this study we applied measurement techniques or instruments such as interviews, surveys, discussion groups or techniques of observation and participant observation, allowing us to tabulate with the exhaustive collection of information and correlating each and every one of the answers of the instruments applied in a general way, understanding relevant aspects for their interpretation and the corresponding synthesis.

The empirical methods used were: Documentary analysis, the survey: It was carried out by means of a questionnaire of questions addressed to the directors of careers that make up the academic units based on their own reality, interviews, participative observation and consultations with specialists in order to obtain decisive and conclusive evidence on the viability of the functional strategy to be implemented.

The mathematical-statistical methods that were used: descriptive statistics and tables of absolute and relative frequencies: gave a better understanding of the results acquired; and the fashion: proper of the consultation by specialist criteria.

Population and sample: It was determined according to the number of teachers that make up the permanent self-evaluation committee for the accreditation of careers and their directors that make up the careers attached to the Faculty of Philosophy, Letters and Educational Sciences. The selection of the sample and after an analysis with the experts suggested that it be intentional because the number of teachers working in the area of accreditation is limited.

Interviews, field observations and surveys were conducted with 7 directors of the 17 careers in the Faculty of Philosophy, Letters and Educational Sciences of the University of Guayaquil, in order to

support the importance of the design of a functional strategy to optimize the self-evaluation and its corresponding accreditation of the career Pedagogy of Experimental Sciences of Mathematics and Physics, obtaining the following consolidated results, from the triangulation of the sources. Among them:

1. Academic/Scientific degree of respondents: 6 Masters and 1 PhD. (86% Masters and 14% PhD)
2. Work experience as career manager: 1-5 years (3 equals 43%) 6-10 years (4 equals 57%) 11 years and older (None).
3. Currently your career is accredited by CACES Yes (1 equals 14%) No (6 equals 86%)
4. There is no organizational structure established in accordance with its mission and vision, between the career, the faculty and the University of Guayaquil.
5. There are no mechanisms and procedures that allow for periodic self-evaluation of the impact of the career, its mission, vision and objectives, as well as the analysis of the needs of the labor, academic and social context.
6. The career does not have strategies for the education, training and promotion of the professional career of the academic staff, the acquisition of the necessary infrastructure, the development of networks with national or international institutions, and articulates its policies with the academic instances in charge of the development, support and promotion of the existing research groups in the institution that are related to the career under study.
7. There is no active and planned participation among students, teachers, directors and authorities in the results of the self-evaluation processes, as part of the strategy in the process of educational quality in the career for its corresponding accreditation by CACES.
8. The course is in urgent need of organizational orientation with specialized and full-time personnel for the management and internal assurance of its educational quality.

Based on the diagnosis of the current situation of the self-evaluation of the Pedagogy of Experimental Sciences of Mathematics and Physics career with the purpose of maintaining its accreditation, the essential criteria of the functional strategy are categorically established in order to optimize the internal self-evaluation process, based on the state of the art its importance for its practical fulfillment from the criteria and indicators of the quality control agencies in higher education in Ecuador.

The population and the sample selected was made based on the importance of the accreditation process, which is why the inclusion of the highest authorities of our faculty, directors of careers and members of the self-evaluation committees of each of the eight redesigned careers is evident in the result. At this level only 6% have a scientific doctoral degree, this is replicated to the teaching staff; however, the list of those who are in the process of obtaining the doctoral level has increased considerably in the last three years.

## Results

The interpretation and analysis of the different answers of the different subjects of study considered that the intervention and institutional strengthening commission ignored the higher collegiate body from which the provisions came; however, regarding the concern about the mission of the career, it should be emphasized that the mission and vision of the career is in accordance with the mission and vision of the faculty and the university, and that there is a career organization chart headed by the director. From the analysis of the answers obtained, it can be seen that they were given due to the intervention process that the University of Guayaquil was going through, which was the time when the instrument was applied.

The satisfactory results of the present research are evidenced by the implementation of the functional strategy through a guide, to establish the internal evaluation process of the Pedagogy of Experimental Sciences of Mathematics and Physics career, and that allowed directing all the actions that guaranteed its faithful fulfillment for its presentation.

The course currently complied with each and every one of the evaluation criteria represented in the variables, dimensions and indicators of the process based on the problem identified and the proposal considering the initial state and the desired current state of the object of study.

It should also be noted that the validation of this research was carried out with the criteria of specialists in the area of the career and others, denoting unanimous agreement on the feasibility and implementation of the proposed functional strategy.

In the last decade, a study of the relevance of the career has been carried out, as well as a market study to analyze the professional preferences of the new graduates; today, relevance is formally

included in the generic model used by CACES to evaluate education careers. The analysis of the results allows us to assure that the mission and vision of the career is under permanent revision for its improvement and adaptation to the current context; the management of curricular integration and graduate follow-up performs a partial work and needs to interact with other departments, which is still not possible to coordinate at the career level.

## **Discussion**

The systematization of the different international and national authors on the processes of internal self-evaluation of a university career, allowed reflecting the lack of implementation of a functional strategy that allows maintaining the accreditation of the Pedagogy of Experimental Sciences of Mathematics and Physics career.

When characterizing the initial state of the internal self-evaluation process to maintain the accreditation of the Pedagogy of Experimental Sciences of Mathematics and Physics career, it was found that there is no finished and instrumented functional strategy, since each of the careers that make up the Faculty of Philosophy, Letters and Education Sciences of the University of Guayaquil, respond to their particular needs, as evidenced from the methodological triangulation carried out.

The contributions and benefits established in this research are of multiple aspects and necessary for the achievement of the desired results that contribute to educational quality, among them:

1. Optimize the process of career organization and planning.
2. Facilitate the review of the objectives and goals of programmed activities.
3. Identify the strengths, weaknesses, opportunities and threats of what is planned.
4. Increase the involvement and commitment of the different actors involved in the accreditation of the career.
5. Allocate financial resources to support career needs.
6. Continuously verify the relationship and compliance of the career with the entry profile, professional graduation profile, curriculum and work environment, among other aspects.
7. Program specific actions derived from ongoing evaluations and their results.

These aspects mentioned above constitute a recommendation as the main axes of the self-evaluation of the educational quality of HEIs, based on criteria of relevance that guarantees the accreditation of a

university career. In addition, to be used as a functional strategy guide for other careers and faculties of universities in Ecuador.

The processes of self-evaluation or accreditation in education occur for very short periods of time, especially due to the changes that are provided in terms of knowledge and information and communication technologies; in addition to the theories that are imposed in the educational field that have to do with the application of new methodologies and teaching strategies, among them arise the new learning environments that bring with them the learning to learn, the management of new platforms. All these innovations can be learned about through scientific events such as pedagogical conferences, seminars, congresses and specialized courses.

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