

Diagnostic Model of Improvement Plans for High-Quality Reaccreditation

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Abstract – The High-Quality Accreditation is a recognition made by the Colombian State to the institutions and programs that demonstrate excellence in their educational processes, for which various factors are taken into account (Mission, Vision, Research, laboratories, among others) and actors of the university environment of a program (teachers, students, graduates, employers, among others), for which a self-assessment process is carried out and subsequently a proposal for an Improvement Plan projected overtime is prepared, with which it is intended to maintain the strengths and you improve the weaknesses that you have as a program. But, as this recognition is temporary and must be renewed, for which a new self-assessment must be developed and a new improvement plan proposed, however, in addition to the high-quality processes developed, the academic programs must carry out a diagnosis of the Improvement Plan or Plans applied to the program, to know how efficient they were, in what percentage they were fulfilled and why they were not entirely fulfilled, or at what it failed, in such a way that in the new reaccreditation process of the program, this diagnosis is taken into account and the same mistakes are not made. Taking into account the above, this article shows the diagnostic methodology of the improvement plan developed by the Mechanical Engineering program of the University of Pamplona in its high-quality reaccreditation process. To know how efficient they were, in what percentage they were fulfilled and why they were not entirely fulfilled or at what it failed, so that in the new reaccreditation process of the program this diagnosis is taken into account and no the same mistakes.

Keywords – Camera ready paper, TEM Journal.

1. Introduction

The High-Quality Accreditation of Institutions and academic programs in Colombia is a process that is regulated by the Ministry of National Education (MEN), the National Council for Higher Education (CESU) and the National Accreditation Council (CNA), to which gives certain guidelines that must be met by institutions or programs that wish to obtain this recognition.

In this context, authors such as Ulker and Aysen (2019), Fontalvo and DeLaHoz (2018), and Benerjee and Bhaswati (2020) suggest that high-quality accreditation processes improve the organizational performance of institutions. Other authors such as Ferreira et al. (2020) and Valencia et al. (2020) follow several strategies to be applied in international accreditation processes. However, and following this line of action, there are several processes or models that have been developed or implemented in order to improve the quality of institutions or academic programs, Delahoz et al. (2020) carry out a detailed study of the Saber Pro Tests to take actions to improve the educational processes of the industrial engineering program, on the other hand, Mendoza et al.

Andreani et al. (2019) discuss whether the results of the university teaching accreditation system in Italy are influenced by the characteristics of the undergraduate programs, their performance, and the characteristics of the students when they enter; In addition, they propose a methodology with an evidence-based approach that addresses the limits found in the literature in relation to university accreditation and quality assurance systems. On the other hand, Arif et al. (2017) sought to determine a mathematical model to determine student satisfaction as a strategy to assess the quality of undergraduate programs in Pakistan by studying factors that support student satisfaction during their training process and the reputation that is perceived. Leiber, T., Stensaker, B. & Harvey, L.(2018) used the classic DOFA matrix used in administration for the evaluation of quality management in higher education and concluded that it is a useful tool to minimize the gap between the methodological challenges and the implementation of the measurement of the impact of quality management.

The quality and accreditation processes is an issue that UNESCO and IESALC have also dealt with in UNESCO (2020) it compiles policies and practices of accreditation of higher education programs in some countries; As common quality factors, self-evaluation and external evaluation were found as methodologies to guarantee quality in institutions and programs, as well as the definition of national standards and accrediting agencies.

Taking into account the above, the Mechanical Engineering Program of the University of Pamplona obtained its High-Quality recognition for the period 2018-2022, for which it complied with the guidelines given by the CESU in Agreements 03 of 2011: Guidelines for the accreditation and renewal of the accreditation of undergraduate programs of accredited institutions (CESU, 2011), and Agreement 02 OF 2012: Initial conditions for the accreditation of academic programs (CESU, 2012). Within these guidelines, the following factors and their respective characteristics are taken into account:

1. Mission, Vision and Institutional and Program Project
2. Students

3. Teachers
4. Academic processes
5. Research and artistic and cultural creation
6. National and international visibility
7. Impact of graduates on the work environment
8. Institutional welfare
9. Organization, administration, and management
10. Physical and financial resources

However, the CESU, in Agreement 02 of the year 2020 (CESU, 2020), updated the High-Quality model of Institutions and Academic Programs, including new factors and characteristics to take into account; Regarding the academic programs, in Article 16 of said Agreement, the academic programs must take into account the following factors and their characteristics when developing a new Self-assessment and proposing a new Improvement Plan.

1. The educational project of the program and institutional identity
2. Students
3. Teachers
4. Graduates
5. Academic aspects and learning outcomes
6. Permanence and graduation
7. Interaction with the national and international environment
8. Contributions of research, innovation, technological development and creation associated with the academic program
9. Well-being of the academic community of the program
10. Educational media and learning environments
11. Organization, administration, and financing of the academic program
12. Physical and technological resources

When making a parallel between the old and new factors and characteristics, proposed in Agreement 02 of the year 2020 (CESU, 2020), it was observed that there are several similarities between the factors and their characteristics; this evaluation allowed us to maintain or modify some objectives and goals, and add new ones to be taken into account in the new self-evaluation and its program improvement plan.

However, to comply with this process, it is important to have a starting point, which is obtained by making a diagnosis of the current situation of the program and the effectiveness of the previously applied improvement plan. Therefore, this document details the phases of the methodology used by the Mechanical Engineering program in its high-quality reaccreditation process.

2. Methodology used

In accordance with the aforementioned, and based on the regulations given by the CESU for this type of process (CESU, 2011, 2012, 2021) and consulting in detail the following documents provided by the Mechanical Engineering program of the University of Pamplona, we proceeded to develop the stages that make up the reaccreditation model of the program.

- Self-Assessment Report of the Mechanical Engineering Program 2017
- Improvement Plan of the Mechanical Engineering Program 2017-2021
- Accreditation peer report assigned by the CNA
- Closing Report of the 2018-2021 Improvement Plan.

From the analysis of these documents, the following stages of the model were proposed:

Stage 1:Based on the model developed by Floréz et al. (2019), in which several parameters are established to determine the starting point of the accreditation process of an academic program, and taking into account the program documents; the following Figure 1 was drawn, in which it is observed that exceeded the process of renewing the qualified registration of the program in 2017 in which the regulations given in Decrees 1295 of 2010 and/or 1075 of 2015 of the National Intersectoral Commission for Quality Assurance of Higher Education (CONACES) are complied with (Conaces, 2010, 2015), a baseline of accreditation of the quality standards of the program is established on that date as stipulated by the CESU decrees (2011, 2012),



Figure 1. Baseline and Improvement Plan for 2017 (Adapted from Flórez et al. (2019)).

Stage 2: After the period of application of the Improvement Plan (2017-2021) and following the recommendations given by the peer reviewers of the accreditation process in 2018, and the Closing Report of the 2018-2021 Improvement Plan, an evaluation of the work carried out during this period, and it was observed that several of the proposed indicators and goals were not met, as indicated in Figure 2.



Figure 2. Compliance with the Improvement Plan.

Stage 3: Next, and as indicated in Figure 3, the reasons why some of the proposed goals were not met were evaluated; this allows us to better understand our strengths and weaknesses as a program, which forces us to reinforce our commitment and that of the institution in its support for the program and its quality. It should be noted that one of the main reasons why many of these goals were not met is the current COVID-19 pandemic, which has brought about a new reality in the teaching model in educational institutions.

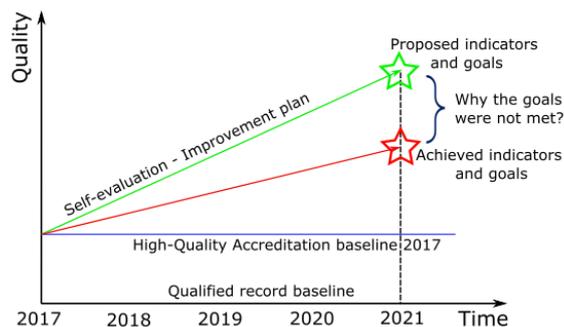


Figure 3. Reasons for non-compliance with the Improvement Plan.

Stage 4: Additionally, and as indicated in Figure 4, this entire process allowed us to establish the baseline of the quality conditions of the Mechanical Engineering program for the year 2021, from which a new self-assessment will be proposed, and the new Improvement Plan is projected in the future.

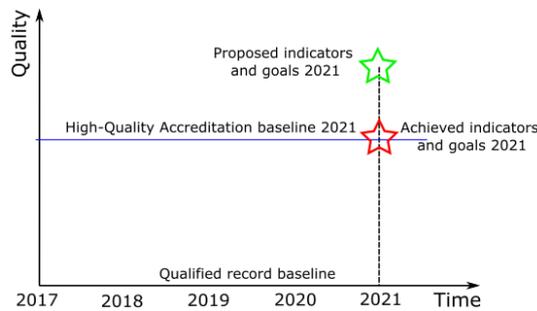


Figure 4. Reaccreditation Baseline 2021.

Stage 5: During this stage, a parallel was developed between the old accreditation guidelines given by CESU (2011, 2012) (10 factors for measuring the quality of undergraduate and postgraduate academic programs) and the new guidelines given by CESU (2021) (12 quality measurement factors of undergraduate and postgraduate academic programs), this allows us to know which factors and characteristics should be maintained or modified for the new self-assessment and which additional ones should be included for the new process.

This allowed to make the respective changes and give recommendations to the Integrated Institutional Assurance and Accreditation System (SIAA) regarding the new self-assessment process of the program that was developed.

Stage 6: At this stage and following the guidelines given by the CNA (CESU, 2021), the Institution, and the recommendations obtained during the diagnosis process of the previous accreditation process, the Self-assessment process of the program was developed.

Stage 7: Once the self-assessment process of the program was carried out, and taking into account the diagnosis of the previous accreditation process and the new baseline, the proposal for the new Improvement Plan of the program projected for the period 2022-2026 was developed, in this plan they proposed different projects and activities to be developed in order to maintain and improve the quality of the program over time, as indicated in Figure 5.

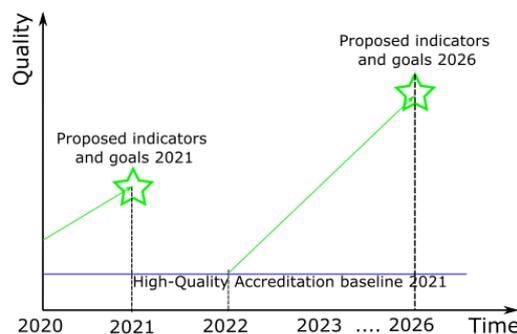


Figure 5. Proposed Improvement Plan for 2022-2026

This methodology is presented in a general way since each institution and each program is different; however, they are all governed under the same conditions, which suggests that the developed model can be easily implemented and applied to other academic programs by making the respective modifications of each case.

3. Conclusions

The diagnostic methodology developed within the Mechanical Engineering program at the University of Pamplona allowed us to better understand the program and take the necessary corrective measures for the success of the new program improvement plan.

The developed model allows to clearly identify the points and those responsible for the non-compliance of some objectives outlined in the improvement plan and to take the respective corrective actions.

By making a parallel between the two accreditation systems, it was possible to define which of the factors and characteristics should be maintained or modified and which should be taken into account in the new system.

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