

Model of an Integrated Accreditation Process in University Education

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Abstract

The legal regulations regarding education seek to guarantee the educational quality framed in the process of university accreditation through process management (ISO 9001:2015 standard) and the competency approach. Most universities do not guarantee a quality university education during the years of comprehensive training for their students, this is due to the fact that there are uncontrollable and controllable factors that cause instability in students, but which are not considered important except for academic performance measured quantitatively. The model for the accreditation of university higher education study programs addresses 34 standards that universities must implement to guarantee the university education of their students during the years they remain in it, mostly avoiding possible dropouts. This research relates these key and redundant standards that will be the inputs to propose a model of integrated higher education process that guarantees quality training and thus, comply with Peruvian society and stakeholders. The analysis of the information is qualitative with a retrospective longitudinal design; As a result, the model was built that identifies 4 key processes and 10 redundant ones.

Keywords: *Integrated process, university accreditation, educational quality, vocational training.*

1. Introduction

Vocational training within the university system contemplates priority axes such as economic, social and academic growth, in addition, these are considered in the educational model, Farro (2012) cited by Gutiérrez (2018) states that the "educational philosophy of the institution, from which goals and lines of action are derived that promote the continuous improvement of people and their environment", From this, it is stated that the education system must be innovating through its regulations.

The accreditation model in the international context is interpreted through its factors, as main axes, and is oriented to the achievement of the performance of the graduate's competencies, which must be measured through their profile, which is the final result of the comprehensive training process (Lora, 2016).

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The current University Law No. 30220 considers in its articles the quality policy and establishes an educational service for students with competencies and values. Likewise, to ensure quality and professional training, it establishes 4 important pillars: reliability in the information system, continuous improvement, promotion of improvement in performance and basic conditions. According to its provisions, it differentiates educational institutions into two: public and private universities with differentiated statuses and realities, but with a single criterion "guarantee professional training"; Not only are the theory and approaches of education sufficient in the achievement of academic and formative development, but the identification of accreditation standards to model an integrated process of university education must guarantee its development processes.

The research approach establishes a qualitative analysis because it considers standards as pillars of evaluation to formulate the integrated process model, this model focuses on: accreditation standards, quality assurance policy, process theory and control diagrams, this approach helps to guarantee university education within the framework of the "Accreditation Model of University Higher Education Study Programs".

The application of Law 28740, creates the National System of Evaluation, Accreditation and Certification of Educational Quality (SINEACE), in order to guarantee society "that public and private educational institutions offer a quality service" (Lora, 2016, p. 11), of this, we can mention that the mission of the University must be in accordance with the arguments collected from internal and external stakeholders.

2. Methods

2.1 Quality Assurance for Higher Education

The National Center for Strategic Planning (CEPLAN) (2011) argues that higher education institutions should aspire to become centers of scientific and technological production, capable of generating innovations and knowledge in their professionals, in addition, institutions should ensure educational quality and application of practices in their students. Finally, it establishes the orientation of the decentralized education system at all levels with a technological infrastructure and quality system. The Ministry of Education (2015) establishes the quality assurance of university higher education as follows: "... ensure that all young people in the country have the opportunity to access a quality university education that allows their personal fulfillment, and trains them as citizens and professionals of high productivity" (p. 6); objective that commits higher education institutions to provide comprehensive, continuous and solid training in accordance with each basic principle established in the normative documents and aimed at training competitive professionals with values that allow an academic reflection of the country through R+D+i (Ministry of Education, 2015), Peruvian society expects to have professionals with ethical principles and quality, capable of being productive and valued in the labour market (Lora, 2016).

2.2 Educational Quality

Every person who wants to study has the right to do so without discrimination, therefore, universities must guarantee quality education. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) cited in (Paredes, 2008), educational quality is "the adequacy of the being and the work of higher education, to its proper being"; In addition, the General Education Law (Law 28044) mentions it as: "training at the optimal level that individuals must achieve which allows them to face the challenges of human evolution, exercise their rights as citizens and continue their studies throughout their existence" (p. 13). The educational purpose mentioned in article 9 (a) of the General Education Act (2003) is to provide students with vocational training that supports and contributes to the sustainable development of society, and also establishes:

To train people capable of achieving their ethical, intellectual, artistic, cultural, affective, physical, spiritual and religious fulfilment, promoting the formation and consolidation of their identity and self-esteem and their adequate and critical integration into society for the exercise of their citizenship in harmony with their environment, as well as the development of their capacities and skills to link their lives with the world of work and to face the incessant changes in society and the environment. knowledge (p. 4).

It is important that the Peruvian State provides students with a solid university education with prospects for professional development, SINEACE and the National Superintendence of Higher University Education (SUNEDU) have established organizational norms and policies that contribute to educational quality.

The university accreditation model proposed by SUNEDU contemplates quality academic service processes through the approach of its standards with voluntary certification through SINEACE; Hugo and Cornejo (2016) in their article point out that:

... SUNEDU, as a specialized body with competence to supervise the quality of university education, is not contrary to the Constitution. Therefore, the determination of the required quality standards is a competence inherent to its specific function (p. 255).

From the above, most universities, in their eagerness to continue operating, fail to implement these standards "under the protection of university autonomy" and that was endorsed through the Constitutional Court on the creation of SUNEDU and the non-vulnerability of the principle of autonomy.

Rueda and Pinilla (2014) establish that the university is an organization that generates impacts on teachers, students and administrators through its functional environment; Today's society is more demanding in the face of the responsibility that universities have because they are places "... of convergence between the production of scientific knowledge (research), the reproduction of this knowledge (transmission of knowledge and training of professional citizens who socialize science and technology)..." (p. 224)

The policy adopted by the Peruvian State is based on making educational institutions responsible for providing students with an educational education of high academic quality.

2.3 University Accreditation Model

From the point of view of the accreditation process, universities, as entities that train professionals of high humanistic and scientific quality, have the duty to meet the expectations of society and interest groups; To this end, it is necessary to establish a multifactorial process that ensures quality in university education within the study program (Paredes, 2008), due to this, SINEACE proposes an accreditation model that contemplates a process-based approach, self-regulatory learning and continuous improvement, which must be implemented in order to guarantee a quality service.

Within the context of accreditation, Lora (2016) differentiates between evaluation and quality measurement:

[...] The former is expressed in qualitative terms, as opposed to the latter, which is established quantitatively. An evaluation makes use of measurement, but it goes further, it issues a value judgment as a result of the in-depth analysis of the aspects involved" (p. 24).

The accreditation model consists of 4 dimensions, 12 factors and 34 standards that the study programs must comply with their implementation, in them the different profiles can be identified according to the scope of their competencies, these must be strengthened in the vision, mission, values and policies of the institution, in addition, the performance of their work will be measured by society and employing companies (Lora, 2016).

Consequently, this model applies continuous improvement in its processes, with the aim of satisfying society (Salas-Rueda, 2018).

2.4 Process management

Process management is currently positioning itself at an accelerated pace and is gaining importance in different institutions due to the fact that its structure comes from systems thinking.

Competition between organizations makes them committed to improving the efficiency and effectiveness of their processes and thus meet the objectives set, in addition, the fact of implementing an integrated process management will improve the system as a whole (Llanes, et al., 2014). Currently, most organizations work based on a functional structure, the transformation towards a process structure makes their workers resistant to change, but they do not recognize the success of its application, which is a compelling reason for other organizations to implement process management (Medina León, et al., 2019).

For Beltrán (2009), process mapping is "... The most representative way to reflect identified processes and their interrelationships is precisely through a process map, which is the graphic representation of the structure of processes that make up the management system" (p. 20).

2.5 Integrated Process Model

For this research, it is the fusion of the different accreditation standards that contain within their principles similar procedures and that by establishing action programs lead us to objectives and goals set for the benefit of students, graduates and society.

Llanes et al. (2014) and Núñez-Pilligua and Michelena-Fernández (2017) refer to processes interrelated with their environment, focused on meeting the needs of stakeholders; A change in any process causes changes in the others.

Llanes et al., (2014), mention that "Integration is the coordination of all processes that, through relationships, add value or reinforce the fulfillment of the mission to meet the present and future needs of society and customers" (p. 262).

In the study by Medina León et al. (1970) cited by Ortiz, Pérez and Velásquez (2015) it states that "Processes represent the common thread that makes the organization a dynamic and complex system, which is why managing them in an integrated way has become a necessity to improve organizational performance" (p. 92).

Likewise, Ortiz Pérez et al., (2015) in their scientific article identify that:

The proposed procedure for the evaluation of the level of integration of processes in universities constitutes a methodological guide for the work of managers. This contributes to achieving greater effectiveness in the decision-making process by conducting an integrated analysis of the university (p. 102).

In the case of self-assessments, Núñez-Pilligua and Michelena-Fernández (2017) argue that implementing them allows us to analyze and know the current situation and impact of the academic-administrative management of the study program, the fact of having a non-integrated organization causes the establishment of more human, economic, technological resources and infrastructure for its management.

Finally, Núñez-Pilligua and Michelena-Fernández (2017) identify in their scientific article that:

Tools designed to assess the reliability and level of integration of processes allow results to be measured in an integrated manner (p. 16). Likewise, Núñez-Pilligua and Michelena-Fernández (2017) mention that integration "favors effective decision-making in the short, medium and long term" (p. 16) and will ultimately help in the evaluation of results.

For the modeling, the Integrated Definition Language (IDEF) was used, which is a graphical analysis of processes to implement systems (Guevara, 2002), for the modeling of the integrated process the IDEF0 method was used, but for this it was necessary to carry out an analysis of the standards already converted into related procedures; the ICOM (Input, Control, Output and Mechanism) technique was used to classify the procedures.

In the accreditation model, the 34 standards proposed by SINEACE (2017) are considered, but for the present research, only those that are articulated with the quality assurance policy to guarantee university education are analyzed:

Entrance

- Standard 05: Relevance of the graduate profile.

The professional profile is the result of the curricular structure included in contents and social demands for its fulfillment with quality and social relevance (Jaramillo, 2015). In their article, Hernández, et al. (2019) evaluate the graduation profile and conclude that the main barrier to achieving the graduation profile is the teachers, in addition, that the students do not assume a training position, nor their role as a social transformer despite the fact that they are knowledgeable about the contents, Ortíz, et al. (2016) cited by Bravo, et al. (2017) identify 4 dimensions: "a) level of evaluation of the training act by graduates, b) level of development achieved by students in the different training cycles, c) level of transfer of the competencies developed in the training process, d) influences or changes at the level of professional contexts" (p. 31).

- Standard 18: Admission to the program of study.

Admission is the application of an internal test related to the knowledge of different subjects, reasoning and reading comprehension "... the results of which take into account the grades obtained in secondary and diversified education..." (Guevara et al., 2011, p. 35). Likewise, Aguilera and Cruz (2005) define admission policy as the art of defining the necessary orientations and actions to "define a system that, taking into account the mission, vision, values and development plans of each institution, gives a socially just response to the demand for admission of applicants to its classrooms" (p. 485).

Control

- Standard 06: Review of the graduate profile.

The graduation profile is the fulfillment of the competencies and abilities established in the study curriculum and that the student achieves in full at the end of his or her degree; Martínez Márquez (2015) explains that the development of the curriculum consists of the planning and organization of the educational process, the purpose of which is to determine the type of professional that society requires. For this reason, the graduate profile becomes important.

- Standard 09: Curriculum.

The curriculum responds to a logic in the development of science; scientific and technological advances and the solution to professional problems through different approaches and disciplines must be addressed by university curricula (Miche, 2003). Martínez Márquez (2015) considers it "... as a reflection not only of social demands but also of university planning and budgeting policies, of the institution's own organizational culture, and of the material and human resources available" (p. 214).

- Standard 11: Competency-based approach.

It is a complex approach that seeks to find in people cognitive skills capable of solving problems based on decision-making. López, et al. (2018) state that competencies "... ability to bring about an important change from a pedagogical and didactic perspective

that truly affects university education and teaching" (p. 529), also Casanova et al. (2018) consider that competencies require "... a number of conditions for its implementation in university education, conceiving the human being from the integrality and complexity of its dimensions, in permanent interaction with the context" (p. 114).

Mechanism

- Standard 13: Mobility.

It is the incorporation of a student to other national or foreign institutions to take courses for a period of time taking advantage of the established agreements.

Corbella and Elías (2018), refer that when students carry out a mobility to another University, they gain more experience and improve their training, in addition, they strengthen the teaching-learning process by the same fact that there is a diversity of students within a classroom, likewise, Ardila-Muñoz (2016) considers that mobility "... it moves between the interest of attracting resources and the intention of strengthening academic and research ties, where there is evidence of an eagerness to achieve greater international visibility" (p. 90).

- Standard 21: Extracurricular Activities.

It is an activity that responds to a strategy to ensure professional training and guidance (Alcántara, et al., 2017). Ivanova and Logvinova (2017) cited by Iso, Eizaguirre and Olalla (2020) define that activities have a positive impact on the comprehensive development of students.

Exit

- Standard 23: R+D+i to obtain the degree and the title.

The study program guarantees authentic research, development and innovation (R+D+i) work for the respective promotion of the university degree.

- Standard 33: Achievement of competencies.

It is the articulation of knowledge by the student after having received the teacher's teaching.

Gordón (2017) defines it as "... to analyze the principles and foundations that guide the educational work represented by a diversity of ideological, anthropological, sociological, epistemological, pedagogical and psychological conceptions in which they are concretized" (p. 130).

- Standard 34: Follow-up of graduates and educational objectives.

It is the compilation of information about the professional performance of graduates in order to establish academic indicators.

Fergusson and Ganoza (2020) consider the graduate as the result of a whole learning process and a reflection of the educational quality they have received, considered in the educational model.

Process

- Standard 12: Articulation with R+D+i and social responsibility.

Applied in the formative stage of students where their training is integrated with research and projection, proposing lasting and impactful projects.

- Standard 19: Leveling of entrants.

Alonso et al. (2018) "consider guidance and levelling as a formative process, which cannot be summarised in instrumental and/or administrative aspects of requesting requirements and necessary documentation to be able to access the higher level" (p. 36)

- Standard 20: Track student performance.

Vergara-Díaz and Peredo-López (2017) mention that admission exams determine the development of student performance.

- Standard 25: Social Responsibility

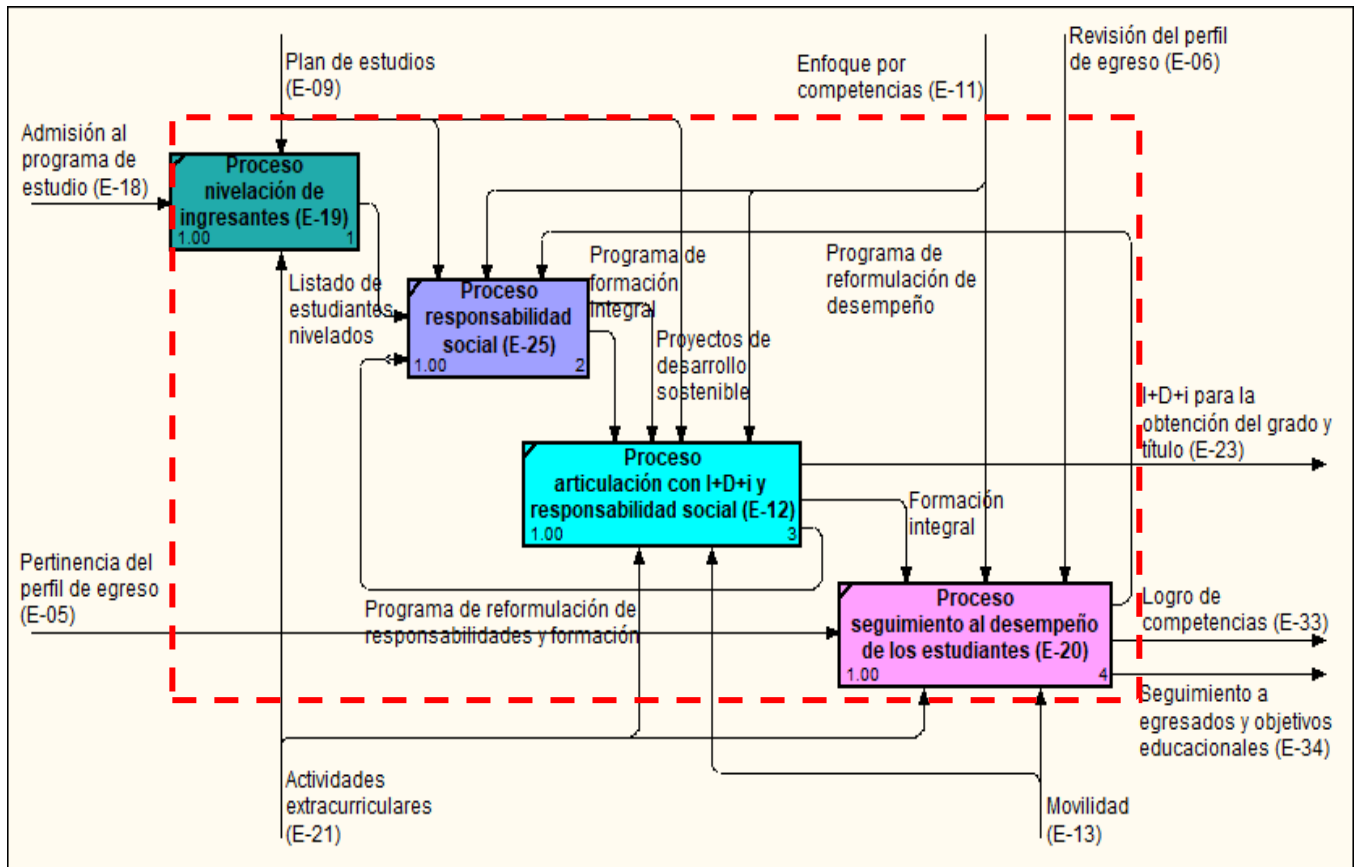
Vallaey (2016) and Sissa (2015) cited by Pérez et al. (2019) mention that "it develops when an organization is aware of itself, its environment and above all its role in the relationship with it" (p. 66), it also defines it as: "quality policy of the performance of the university community through the responsible management of the impacts that the university generates" so it must consider an open and participatory dialogue with stakeholders.

3. Results

Following the theoretical foundations and background, each of the standards has been analyzed in relation to the purpose of the research, and then they have been classified according to their intention, for this the ICOM technique (input, control, output and mechanism) has been used, which is based on systemic thinking and the determination of its scope.

Organizations function based on their objectives, to achieve this it is necessary that the areas are integrated; likewise, the integration of the processes has the same work logic, that is, that the standards are integrated according to their affinity and academic-administrative impact to comply with the stipulations of the mission; as a result, it has been possible to identify two general processes: the first key or missional and the second redundant. For the key process, the following processes have been identified: leveling of incoming students, social responsibility, R+D+i articulation and monitoring of student performance. The redundant process considers admission to the study program, relevance of the graduate profile, curriculum, competency-based approach, review of the graduate profile, extracurricular activities, mobility, achievement of competencies, R+D+i to obtain the degree and title and the follow-up of graduates and educational objectives, see figure 1.

Figure 1. Integrated process model in the university education of a study program.

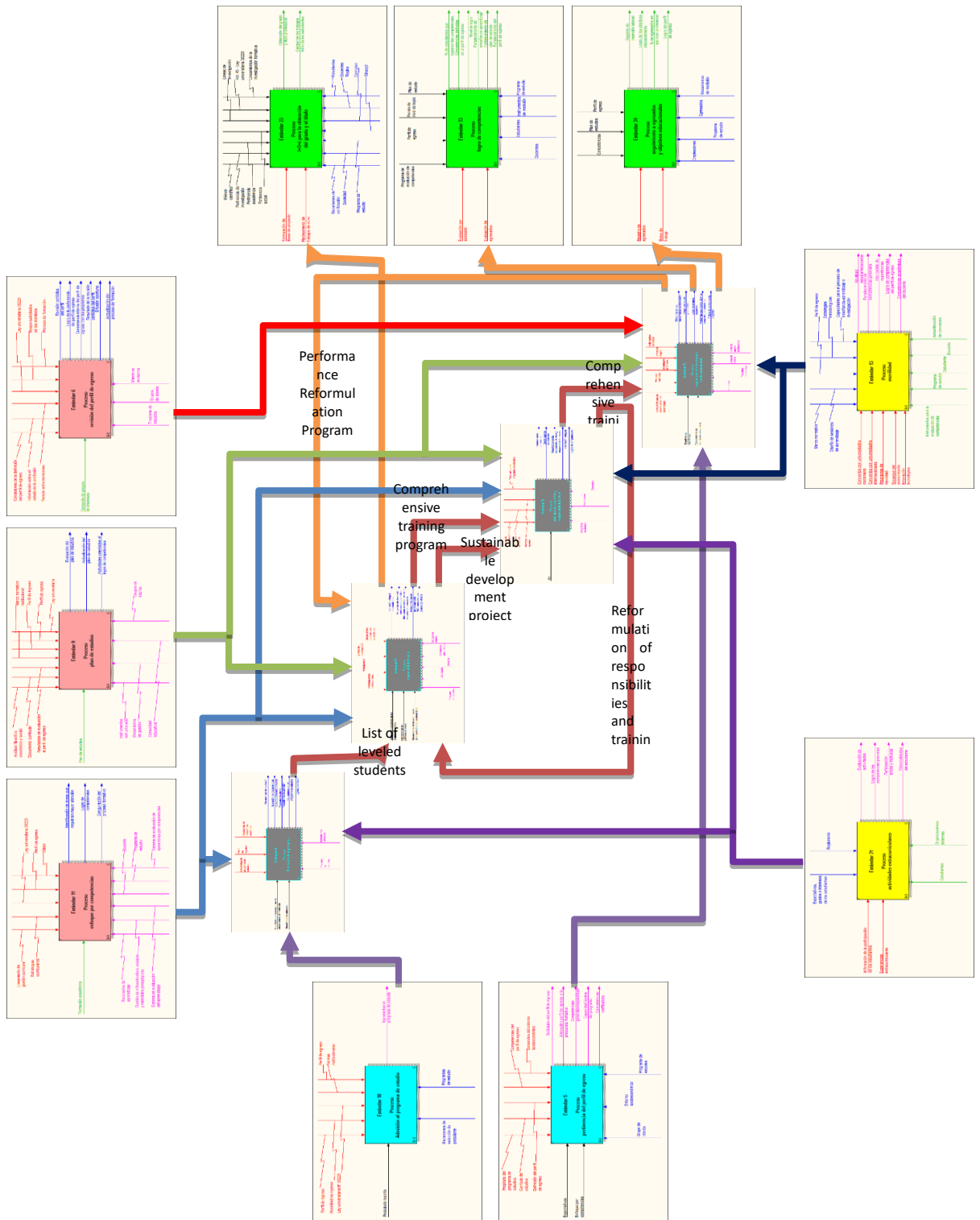


Source: Authors' own elaboration with information. In original Spanish language

As can be seen in the figure, the interaction between the key processes works according to the activities inherent to their function, the output of each process serves as an input to the next process, but at the same time as a feedback to the previous one, fulfilling the cycle of continuous improvement with respect to the correction or updating of information; Redundant processes are powering them uninterruptedly, making the system run without stopping.

The formulation of the integrated model will demonstrate its operation as long as it is possible to identify the procedures that will be carried out within the structure of the processes identified in the previous figure, for this the ICOM technique was also used, see figure.

Figure 2. A model of a process disaggregated in its processes for university education.



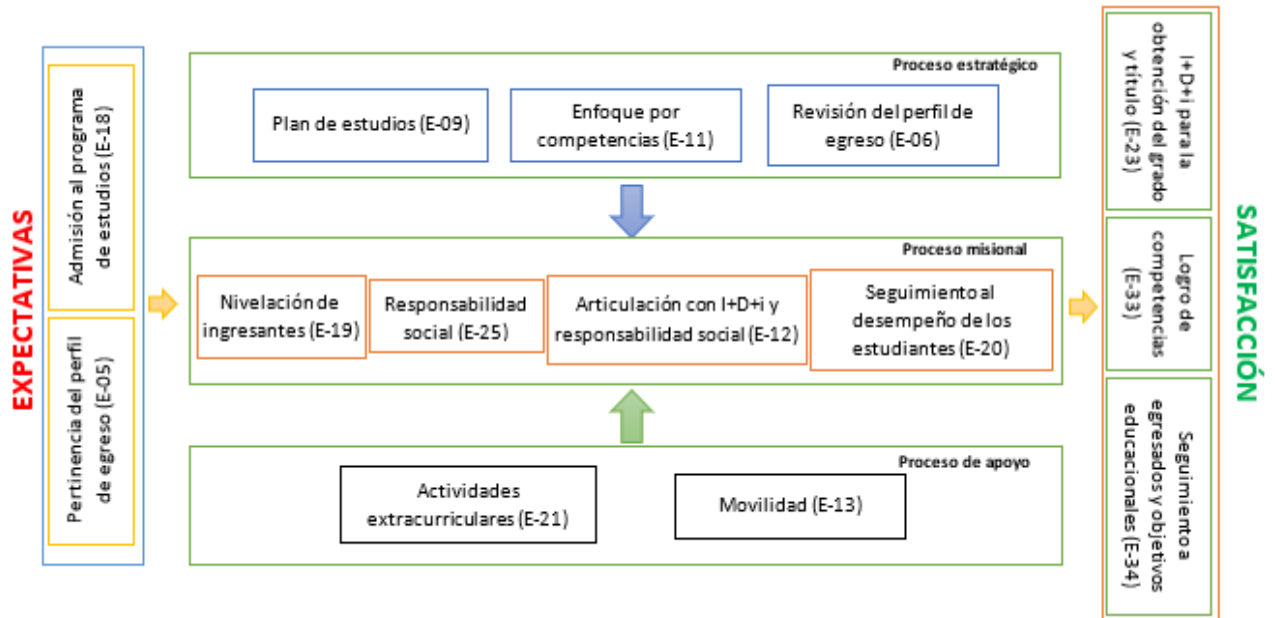
Note. In-house elaboration, with information from the integrated process. In original Spanish language

In the figure we can identify how the processes are going to interact with each other according to the needs of the previous and subsequent ones, always considering the information flows of their inputs, processes, mechanisms, support and output.

Additionally, the design of the integrated model in Figure 1 begins with the elaboration of the macro-process of the study program, whose structure is based on the conforming

processes (key and redundant) and classified as: strategic, missional and support, its purpose is oriented to the achievement of the objectives of the institution, that is, the distribution of the processes proposes to guarantee the university education of the student, See Figure 3.

Figure 3: Macro-process of the integrated processes of a study program.



Note. Own elaboration with the information of the integrated process. In original Spanish language

In the figure it can be verified that the standards have been properly distributed and classified according to the basic structure of the macroprocesses, the components of the ICOM technique have served us to make a correspondence of functions, that is, that the control processes (C) are identified as the strategic processes, the mechanism processes as the support processes, Key processes such as the missionary process, inputs are validated as the expectations of the entrant and outputs as the satisfaction of the graduate.

4. Discussion

The technical document of the "Explanation of the standards of the accreditation model of university higher education study programs" issued by SINEACE, relates the standards, but creates a network of networks between them and, by representing them, complex interrelationships are created. Student dropout is a non-controllable variable because it obeys exogenous factors that affect the model, none of the standards proposed by SINEACE deal with the issue in question, but they do deal with academic performance, so they do not guarantee quality training for students in a short time, despite the fact that there are also educational quality policies and other regulations issued by MINEDU. In addition, the measurement of quality is given by the different standards established by the MINEDU, but they do not consider the non-controllable variables oriented to student satisfaction and society.

5. Conclusions

In the design of the model, 4 key processes were identified: leveling of incoming students, social responsibility, articulation with R+D+i and finally the process of monitoring student performance.

In the process mapping, it was identified that: curriculum, competency-based approach and review of the graduate profile are strategic processes; and, leveling of incoming students, social responsibility, articulation with R+D+i and monitoring of the performance of the students are missionary or key processes. Finally, extracurricular activities and mobility are supportive processes.

The relevance of the graduate profile and admission to the study program are expectations that society expects to achieve through the professional training that universities provide to students.

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