Journal University

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Journal University Management

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The works must be unpublished and refer to topics of university school management, management of university academic counseling, elements and conditions for reform in university school management, specific management models for each university context, inclusion as a fundamental tool for attending university diversityand other topics related to Social Sciences.

Presentation of Content

As first article we present, *Model for managing an electronic curriculum at a university 4.0*, by CANEDO-MONTOYA, Gerardo Miguel, CANEDO-MONTOYA, Enrique Daniel and CANEDO-ROMERO, Gerardo Enrique, as second article we present, *Analysis of the mechanical and electrical laboratory service at the faculty of electrical mechanical engineering of the Universidad Veracruzana in Poza Rica Veracruz, Mexico,* by CHAGOYA-RAMÍREZ, Jorge Alberto, LAGUNA-CAMACHO, Juan Rodrigo, CALDERÓN-SÁNCHEZ, Javier and JUÁREZ-BALTAZAR, Claudia Montserrath, with adscription in the Universidad Veracruzana, as third article we present, *Academic tutoring as a tool for Social Responsibility in Higher Education*, by IRIGOYEN-ARROYO, Luis Ernesto, SOTO-RIVAS, Soledad and ARROYO-RUIZ, Armando, with adscription in the Tecnológico Nacional de México, campus San Martín Texmelucan Puebla, as last article we present, *Reflecting between evaluation and teaching practice. Re-visions and challenges*, by MARTÍ-REYES, Mireya & CERVERA-DELGADO, Cirila, with adscription at the Universidad de Guanajuato.

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Model for managing an electronic curriculum at a university 4.0

Modelo para la gestión de un curriculum electrónico en una universidad 4.0

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Abstract

With the fourth industrial revolution, the paradigm of the intelligent university was born. An innovative pillar is, in the teaching function, the intelligent curriculum. This curriculum is student-centered and requires continuous labor market screening. This paper proposes a model for intelligent management in a university 4.0 This model is based on the standard IT4IT and the Electronic institution development environment framework in multiagent systems, the model meets the stated objectives.

Smart University, University 4.0, Smart Curriculum

Resumen

Con la cuarta revolución industrial se generó el paradigma de la universidad inteligente. Un pilar innovador es, en la función docencia, el curriculum inteligente. Este curriculum está centrado en el estudiante y requiere una detección continua del mercado laboral. En este trabajo se propone un modelo para la gestión inteligente en una universidad 4.0 este modelo se basa en el estándar IT4IT y en el marco de trabajo Electronic institution development environment framework en sistemas multiagente, el modelo cumple con los objetivos marcados.

Universidad Inteligente, Universidad 4.0, Curriculum inteligente

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Introduction

Antecedents

In the sixties of the last century, the Third Industrial Revolution began. This was caused by the incorporation of computer systems into organizations [1]. Beginning in the 1990s of the 20th century, with the arrival of a disruptive technology, known as the Internet, the interactions between the organizations move from a local environment to a global one. This type of organization is known as digital organizations.

The Smart Organization

In 1999, Choo published his book "The Smart Organization" [2]. This document states that an organization continuously perceives information from its processes, generates knowledge, and modifies its procedures. This knowledge is based on the experiences of your inner environment. Since the fourth industrial revolution [3] the concept of intelligent organization was expanded. Now the perception is also to their external environment. That means generating knowledge about future trends in your area of competence, the latter means that smart organization must have a strong component of disruptive innovation. These types of organizations are now known as smart organizations.

Section II will study the concept of a smart university or university 4.0. Section III will study the IT4IT regulations and the EIDE framework based on mutiagent systems for the development of a smart organization. Section IV will develop the model for the management of a smart curriculum for a University 4.0.

The Smart University

The University is an organization that forms the human resources that society demands and generates knowledge for the development of new technologies, so the role is fundamental to the Third Industrial Revolution. It is known as Digital University, from the Internet, it makes use of social technologies (So), Mobile (Mo) and in the cloud (Clo) [4]. This changed the structures of teaching and the way in which research activities are carried out in a global environment.

With the advent of smart organization, digital university is becoming a smart university. This smart university will revolutionize the three substantive functions of a university: Teaching, research and extension. Only the management of the smart curriculum will be presented in this paper [5]. A model will be proposed for the management of the smart curriculum that allows the perception of information from the external environment and the generation of knowledge for strategic decision-making in the university.

The smart university is being characterized by being student-centered. The main pillars are: Flexible curricula that meet the needs of the student according to the outdoor environment. This will involve new degrees. Each student will have his or her academic training in a personalized manner. The tool that will enable the management of such a teaching system is distributed artificial intelligence (multiagent system).

Standardization and framework

The IT4IT Standard

The Open Group consortium published, in 2016, the IT4IT Reference Architecture standard, Version 2.1 Technical Standard [6], is a standard for managing business models with information technology. This standard is based on the Porter value chain, four stages are defined in the primary activities. The IT value chain is grouped into two main categories of activities:

- Pimary activities, which deal with the production or supply of goods or services for which a business function, such as IT, is directly responsible.

- Activities, which facilitate the efficiency and effectiveness of primary support activities.

IT value chain content details the series of activities that each IT department performs that add value to a business service or IT service.

The functional components in the IT value chain are grouped into four IT value streams and five supporting activities, as follows.

The primary value streams for the IT value chain are:

- Strategy to Portfolio, S2P.

- Requirement to Deploy, R2D.

- Request to Fulfill, R2F.

- Detect to Correct, D2C.

Core activities are at the heart of the IT function and play a vital role in helping to comprehensively execute the entire lifecycle. These are usually organized within it.

The activities in support of the IT value chain are:

- Governance Risk and Compliance.

- Sourcing and Vendor.

- Reporting.

- Finance and Assets.

- Resource and Project.

This standard defines the value streams, functional components, and associated data objects that are critical to the service lifecycle.

The primary value streams in this standard are as follows:

Portfolio Strategy

This flow of value establishes the strategy of the services required by the organization, both for internal users and external users. The product of this value flows The conceptual plan of the organization.

Requirement to Deploy

This value flow corresponds to the tactical part, defines the logical services to meet the organization's objectives. The product of this value flow is the Logical Plan for Services.

Request to Comply

This value stream consists of the operational part. This value stream refers to the implementation of the infrastructure for logical services interoperability. The product of this value stream is the Operational Plan of the organization's infrastructure.

Detection for Correction

This flow of value consists in the detection of the operation and the detection to generate knowledge and contribute to decision-making by the strategic part. Figure 1 shows the outline of this standard with the four value flows.
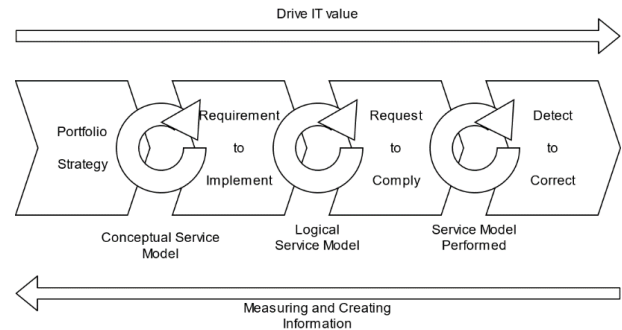
Figure 1 Description of the IT4IT standard

Electronic institution development environment framework

Distributed artificial intelligence consists basically of multi-agent systems, an agent is software with properties of being autonomous, proactive, reactive and social. A multi-agent system consists of a collection of agents that behave like a human organization. This in a multi-agent system requires learning, negotiation, and communication processes between agents to achieve the goal of the multi-agent system. Another feature of multi-agent systems is the inclusion of standards of conduct to regulate the overall behavior of the multi-agent system.

High-level work frameworks exist for the design, implementation and simulation of a multi-agent system, i.e. they have user-friendly graphical interfaces. The proposed Electronic Institution Development Environment Framework (EIDE) [7] consists of four programs: ISLANDER, aBUILDER, AMELI and SIMDEI. The EIDE is composed of:

- ISLANDER. A graphical tool that supports the specification of rules and protocols in an electronic institution.

- SIMDEI. Simulation tool to analyze and verify the specifications developed in ISLANDER.

- AGENT BUILDER. Agent development tool.

- AMELI. Software platform to run e-institutions.

Figure 2 marks the relationships between these four components.

Figure 2 Understanding the EIDE Framework

Development of a model for the management of an intelligent curriculum

As mentioned above, with the Third Industrial Revolution the traditional university underwent a transformation giving way to the concept of an intelligent university. This type of university was possible with the emergence of innovative technology such as the Internet [8]. Later, the incorporation of disruptive technologies such as social media, mobile device communication over the Internet, and cloud computing. These technologies impacted teaching-learning processes. This led to distance education. On the other hand, traditional degrees remain with a rigid curriculum with little student participation. Figure 3 shows a model based on the value chain for the teaching function.
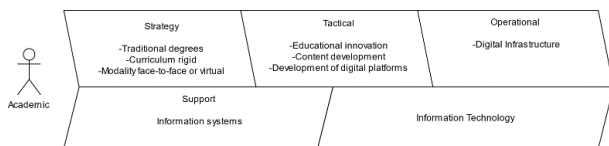
Figure 3 Teaching model for a Digital University

It can be said that this teaching model the curriculum is fixed and established in most cases by university academics without considering the external environment. Nor are the student's competencies and skills considered, school control is simple, since it is the same for a given degree, giving rise to the electronic school record for each student.
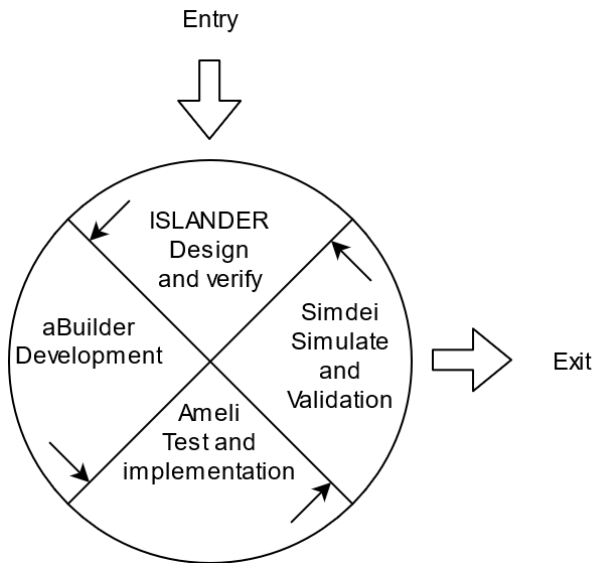
With the Fourth Industrial Revolution the concept of digital university became the concept of smart university. This new paradigm is at a turning point on the path to the universities of the future, innovation now plays a key role in all university tasks such as teaching, research and extension. Figure 4 shows a case model for the intelligent transformation of a 4.0 university.
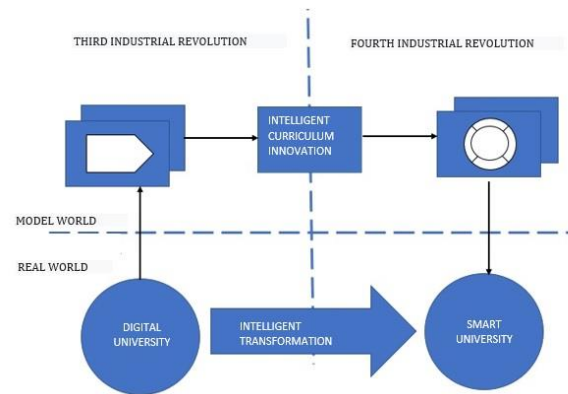
Figure 4 Transformation to the university 4.0.

A disruptive innovation in teaching function is what has been called intelligent curriculum. This curriculum is focused on the student and the outside environment. That is, in the competencies and skills of the student that allow a free choice over his/her content path in the curriculum. this type of curriculum must also maintain a permanent detection of changes in labor markets. As a result, the electronic school record is unique to each student which requires efficient management for the administration of his or her school record.

Innovation is also carried out at the level of teaching/learning processes for the offer of courses in the distance modality in an efficient way.

A proposed model for the management of the intelligent curriculum for a university 4.0 starts from the following considerations:

1. The student-centered model.

2. Developing a smart curriculum (each university will determine the type of curriculum).

3. The management of the electronic school record individually for each student.

4. Consideration of an information technology standard.

5.   The development of the model will be with a framework for distributed artificial intelligence.

The model based on the IT4IT standard of The Open Group mentioned above and the Electronic Institution Development Environment described in a previous paragraph is shown below.

Figure 5 shows the complete model.
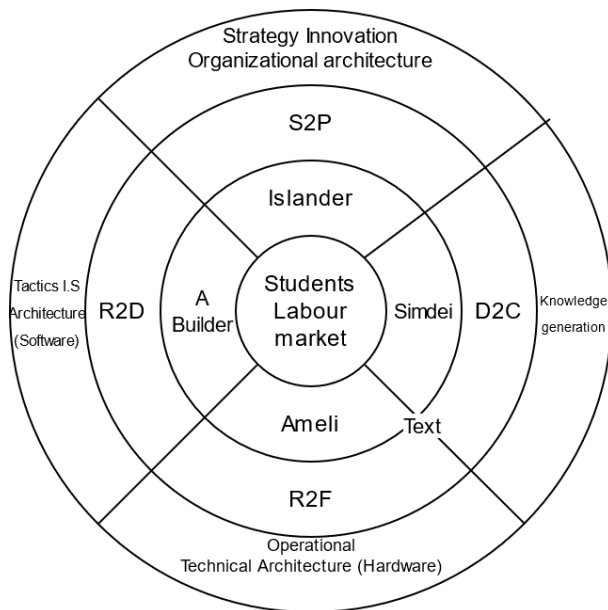
Figure 5 Complete model of a university 4.0

This model is student-centered, allowing you to make the most of your skills and competencies. As the figure shows, this model is now a circle of value, allowing a permanent perception of the external environment (labor market).

This model uses the tool of distributed artificial intelligence to achieve curriculum management by collaborating with all the processes involved.

Conclusions

The general objective of this work was to propose a model for the management of a smart curriculum in a 4.0 university under the IT4IT standard and a working environment based on multi-agent systems. This work met the goal set completely. As a future work, this model is being implemented with the framework already mentioned to achieve verification and validation of it.

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Analysis of the mechanical and electrical laboratory service at the faculty of electrical mechanical engineering of the Universidad Veracruzana in Poza Rica Veracruz, Mexico

Análisis del servicio del laboratorio de mecánica y eléctrica en la facultad de ingeniería mecánica eléctrica de la Universidad Veracruzana en Poza Rica Veracruz, México

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Abstract

It is important to mention that educational quality and excellence within any Higher Education Institution lies in the importance of implementing continuous improvement in each of its different departments or areas, that is why constant analysis and self-evaluations of the services provided offered within it take on more and more importance, these are carried out in order to locate areas of opportunity in which it is necessary to implement strategies that help to achieve the desired levels of quality. This research is an analysis study focused on the services provided by the Mechanical and Electrical Laboratory to its users of the Faculty of Electrical Mechanical Engineering of the Universidad Veracruzana in Poza Rica Veracruz, Mexico, using an applied opinion survey. to a sample of 169 people, which allows identifying the indices of each of the services that are provided, the results obtained provide relevant data that will later be used for the design of an improvement plan that allows generating actions that favor the continuation being a quality educational institution.

Resumen

Es importante mencionar que la calidad y excelencia educativa dentro de cualquier Institución de Educación Superior radica en la importancia de implementar la mejora continua en cada uno de sus diferentes departamentos o áreas, es por eso, que los análisis y autoevaluaciones constantes de los servicios que se brindan dentro de ella toman cada vez más importancia, estos se llevan a cabo con el fin de localizar áreas de oportunidad en las cuales se necesite implementar estrategias que coadyuven a conseguir los niveles de calidad deseados. La presente investigación, es un estudio de análisis enfocado a los servicios que presta el Laboratorio de Mecánica y Eléctrica a sus usuarios de la Facultad de Ingeniería Mecánica Eléctrica de la Universidad Veracruzana en Poza Rica Veracruz, México, utilizando para ello una encuesta de opinión aplicada a una muestra de 169 personas, la cual permite identificar los índices de cada uno de los servicios que en él se prestan, los resultados obtenidos aportan datos relevantes que posteriormente servirán para el diseño de un plan de mejora que permita generar acciones que favorezcan a continuar siendo una institución educativa de calidad.

Quality, Education, Continuous improvement

Calidad, Educación, Mejora continua

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† Researcher contributing as first author.

General objetive

To carry out an analysis that generates new knowledge about the degree of satisfaction of the service provided by the Mechanical and Electrical Laboratory at the Faculty of Electrical Mechanical Engineering of the Universidad Veracruzana in the city of Poza Rica Veracruz, through a statistical research method descriptive.

Particular objectives

- To interpret the data obtained on the degree of satisfaction of mechanical and electrical equipment.

- To analyze the qualification given to the Mechanical and Electrical Laboratory for the services it provides.

- To interpret the data obtained on the care provided to users.

What is the importance of knowing the degree of satisfaction of the service in the Mechanical and Electrical Laboratory?

Talking about the Mechanics and Electrical Laboratory is to highlight the essence of this Faculty, this given the importance for each of the users who develop different academic activities within it, that is why the research carried out seeks to know the impact generated by the degree of satisfaction in each of the areas analyzed, all this in order to continuously improve as an Academic Institution, since the Faculty of Electrical Mechanical Engineering of the Universidad Veracruzana in the Poza Rica-Tuxpan region is a recognized and accredited academic entity in each one of its educational programs for their academic quality before the AC Engineering Teaching Accreditation Council in Mexico. That is why the importance of knowing the areas of opportunity, in which improvements can be implemented based on a previous investigation, which is carried out on a sample of a certain number of users that support the data of each of the results obtained.

Background

Within the research works, it is important to mention if any exploration was previously carried out or carried out in the area or department where the current research is being carried out.

In particular, the Faculty of Electrical Mechanical Engineering of the Poza Rica - Tuxpan Region, is characterized by being an Institution of Higher Education (IES) in which a large amount of work, research and prototypes of an endless application of knowledge are developed, But not only the engineering part is the one that is worked on, one of the fundamental aspects in the correct functioning of the Faculty lies in the importance of Management, that is why this type of work helps to achieve the goals set internally.

As an antecedent within the analysis of degree of satisfaction in the Faculty of Electrical Mechanical Engineering, we can consider the publication *"Analysis of the Service of the Computing Laboratory of the Faculty of Mechanical and Electrical Engineering at the Universidad Veracruzana in Poza Rica Veracruz, Mexico"* which was published in the *"Higher Education Magazine, December 2020, Vol.4, No.12, 12-19.*

Methodology

The method applied to the present investigation is based on the selection of a probabilistic sample, since these have many advantages; Perhaps the main one is that the size of the error in our predictions can be measured (Sampieri Hernández, 2014, p. 177), this given that first the identification of the segment to be evaluated was carried out, later it was possible to determine the procedure to follow, In this case, having a finite population, it was easier to dictate or establish the steps to follow, later a survey was carried out, all this to conclude with the interpretation of each of the data collected, as well as the opinions contributed by each of the participants.

To determine the sample size, it was necessary to implement the following formula:

$$n = \frac{k^2 N \, p \, q}{[e^2(N-1)] + [k^2 p \, q]} \qquad (1)$$

Formula 1 Sample Size
Source: (Sampieri Hernández , Metodología de la Investigación, 2014).

Where:

k: Confidence level.

N: Population.

p: Probability of an event occurring.

q: Probability that an event will not occur.

e: Maximum accepted estimation error.

It is important to detail the analysis procedure step by step since every process has an order, then Figure 1 describes each of the stages carried out.
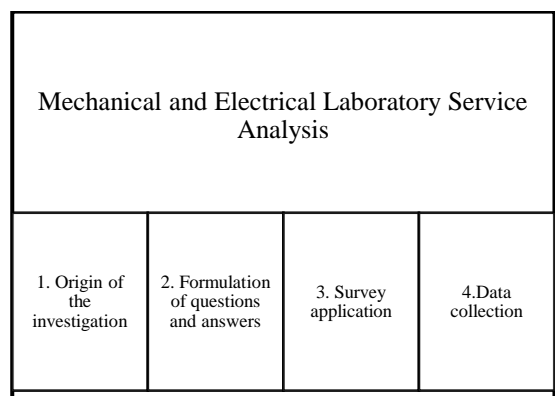
Figure 1 Phases of research development
Source: Own elaboration

Origin of the investigation

Establishing the purpose of an investigation and identifying each of the variables that may exist within the aspects to be evaluated is one of the priority points for any investigation.

Derived from the aforementioned, the present work arises from the need to know the current state of the degree of user satisfaction, through an analysis that provides data that allows identifying the aspects in which it can be improved in terms of the service provided by the Mechanical and Electrical Laboratory of the Faculty of Electrical Mechanical Engineering, likewise, locate each area of opportunity that is available and in which improvement designs based on strategies are subsequently generated, all in order to continuously improve as an institution.

Formulation of questions and answers

The establishment and formulation of questions arises from an analysis based on each of the services that can be evaluated through a degree of satisfaction and with which the Mechanical and Electrical Laboratory of the Academic Entity has, Figure 2 breaks down each one of the services that were taken into account for your evaluation.
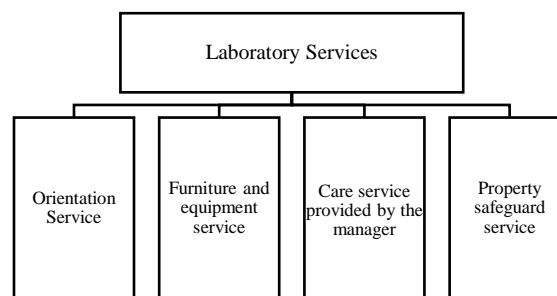
Figure 2 Mechanical and Electrical Laboratory Services
Source: Own elaboration

Once the measurable services were identified through a degree of satisfaction, it was decided to include complements that could strengthen the present analysis, taking important points such as the evaluation of the application of the internal regulations of the Laboratory, this due to the fact that a correct application of the rules and regulations of a certain space encourages a good service of this.

Subsequently, each one of the questions that make up this survey was carried out.

The answers that were taken into account for each question are based on their own, standardized and homogenized criteria, where the Excellent answer is considered the most favorable and the Bad answer is considered the least favorable.

Once the questions and answers of our questionnaire were established, the process continued to continue. Figure 3 shows the order of the questions, the possible answers and the structure presented by the survey.

Universidad Veracruzana
Facultad de Ingeniería Mecánica Eléctrica
Región Poza Rica – Tuxpan

"working with quality to achieve excellence"

SURVEY OF OPINION OF DEGREE OF SATISFACTION OF THE SERVICES OF THE MECHANICS AND ELECTRICAL LABORATORY

With the aim of improving the level of quality and thanking you for your collaboration, the Faculty of Electrical Mechanical Engineering wishes to know your degree of satisfaction with the service provided by the Mechanical and Electrical Laboratory of this Faculty, for the following we invite you to answer the questions next questions:

1. What is your opinion regarding the orientation service when entering the Mechanical and Electrical Laboratory?
A) Excellent   B) Good   C) Regular   D) Bad

2. How do you consider the furniture and equipment of the Mechanical and Electrical Laboratory?
A) Excellent   B) Good   C) Regular   D) Bad

3. How do you consider the care provided by the person in charge of the Mechanical and Electrical Laboratory?
A) Excellent   B) Good   C) Regular   D) Bad

4. How do you consider the service of safeguarding your belongings during your stay at the Mechanical and Electrical Laboratory?
A) Excellent   B) Good   C) Regular   D) Bad

5. How do you consider the application of the regulations of the Mechanical and Electrical Laboratory?
A) Excellent   B) Good   C) Regular   D) Bad

6. According to your personal criteria and for academic purposes, would you like to make any comments, suggestions or observations about the Mechanics and Electrical Laboratory?

7. On a scale of 1 to 10, with 10 being the highest rating and 1 being the lowest. How do you rate your level of satisfaction with the Mechanical and Electrical Laboratory of the Faculty of Electrical Mechanical Engineering?

1	2	3	4	5	6	7	8	9	10

Thanks for your participation!

Figure 3 Satisfaction degree survey
Source: Own elaboration

Survey application

For the application of the survey it was necessary to identify the total size of Population N, which was 593 students belonging to the different Educational Programs offered in this Academic Entity, however, it is important to mention that 145 of these belong to the Enrollment S19 and 147 to Enrollment S20, which have not been able to carry out activities related to this laboratory, all this due to the current health situation, therefore 292 students were discarded for the present research work, our final population being *N = 301* students.

Subsequently, it was ruled that the Confidence Level would be: *k = 95% (1.96), p = 50% (Because it is unknown), q = 50% (Because it is unknown) and e = 5%*, in such a way that, when inserting the data to the formula raised at the beginning, it is as follows:

$$n = \frac{(1.96)^2(301)(.5)(.5)}{[(.05)^2(301-1)]+[(1.96)^2(.5)(.5)]} \qquad (2)$$

Formula 2 Data substitution in formula
Source: Own elaboration

$$n = \frac{289.08}{[0.75]+[0.96]} \qquad (3)$$

Formula 3 Reduction of terms
Source: Own elaboration

$$n = 169.05 \qquad (4)$$

Formula 4 Sample size result
Source: Own elaboration

The final sample size was *169 users* assigned to the Faculty of Electrical Mechanical Engineering. It is important to mention that the procedure for the application of the survey was carried out at the time of completing the registration within the Microsoft Forms platform, after that it was shared in different study groups, which allowed it to be answered remotely It should be noted that participation in this research was voluntary.

Data Collection

In this phase, the opinion results of the surveys were quantitatively analyzed, the results of each question yield relevant information about the objective set out with this analysis, then the results of the frequency indices are shown in each item of each one. of the questions.

Question 1 evaluates the service received upon admission to the laboratory.

1. What is your opinion regarding the orientation service when entering the Mechanical and Electrical Laboratory?
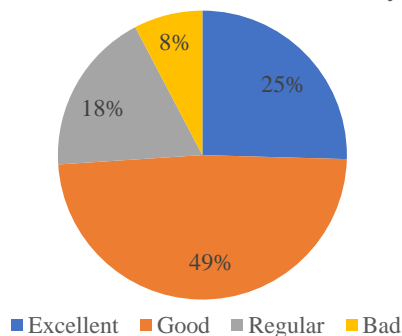
Results → Excellent: 43 people, Good: 82 people, Regular: 31 people, Bad: 13 people.

Graphic 1 Results of question 1
Source: Own elaboration

1. What is your opinion regarding the orientation service when entering the Mechanical and Electrical Laboratory?		
Answer	Opinions	Porcentage
Excellent	43	25%
Good	82	49%
Regular	31	18%
Bad	13	8%
Total	169	100%

Table 1 Values recorded in question 1
Source: Own elaboration

Interpretation of the data obtained in question 1:

It is determined that the orientation service at the time of entering the Mechanics and Electrical Laboratory is "Good". Question 2 of the survey refers to the state of the furniture and equipment found within the Mechanical and Electrical Laboratory.

2. How do you consider the furniture and equipment of the Mechanical and Electrical Laboratory?
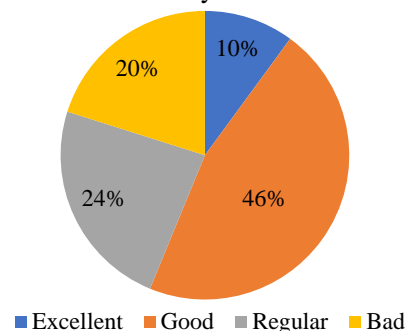
Results → Excellent: 17 people, Good: 78 people, Regular: 40 people, Bad: 34 people.

Graphic 2 Results of question 2
Source: Own elaboration

Interpretation of the data obtained in question 2:

The equipment and furniture of the Mechanical and Electrical Laboratory is determined to be "Good".

2. How do you consider the furniture and equipment of the Mechanical and Electrical Laboratory?		
Answer	Opinions	Porcentage
Excellent	17	9%
Good	78	51%
Regular	40	22%
Bad	34	18%
Total	169	100%

Table 2 Values recorded in question 2
Source: Own elaboration

Question 3 shows a more personalized approach when evaluating the care provided by the person in charge of the Mechanical and Electrical Laboratory.

3. How do you consider the care provided by the person in charge of the Mechanical and Electrical Laboratory?
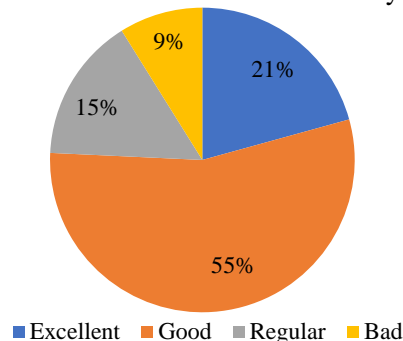
Results → Excellent: 35 people, Good: 93 people, Regular: 26 people, Bad: 15 people.

Graphic 3 Results of question 3
Source: Own elaboration

| 3. How do you consider the care provided by the person in charge of the Mechanical and Electrical Laboratory?		
Answer	Opinions	Porcentage
Excellent	35	21%
Good	93	55%
Regular	26	15%
Bad	15	9%
Total	169	100%

Table 3 Values recorded in question 3
Source: Own elaboration

Interpretation of the data obtained in question 3:

It can be established that the care provided by the person in charge of the Mechanical and Electrical Laboratory is "Good". On the other hand, in question 4 the service of the safeguarding of belongings is evaluated during the stay that the user has within the Laboratory.

4. How do you consider the service of safeguarding your belongings during your stay at the Mechanical and Electrical Laboratory?

■Excellent ■Good ■Regular ■Bad
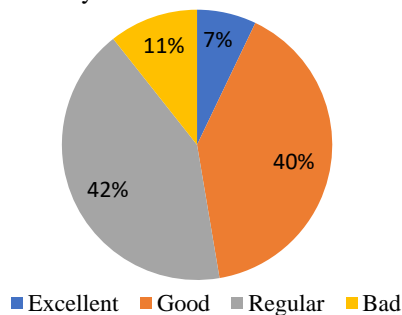
Results → Excellent: 12 people, Good: 68 people, Regular: 71 people, Bad: 18 people.

Graphic 4 Results of question 4
Source: Own elaboration

Interpretation of the data obtained in question 4:

The survey participants consider that the safeguarding of their belongings during their stay in the Mechanics and Electrical laboratory is "Regular".

4. How do you consider the service of safeguarding your belongings during your stay at the Mechanical and Electrical Laboratory?		
Answer	Opinions	Porcentage
Excellent	12	7%
Good	68	40%
Regular	71	42%
Bad	18	11%
Total	169	100%

Table 4 Values recorded in question 4
Source: Own elaboration

Undoubtedly the regulatory part of any space contributes considerably to providing a good service, since it encourages the proper use of the facilities and everything that is in them, that is why, question 5 considers the part regulations of the Mechanics and Electrical Laboratory.

5. How do you consider the application of the regulations of the Mechanical and Electrical Laboratory?

■Excellent ■Good ■Regular ■Bad
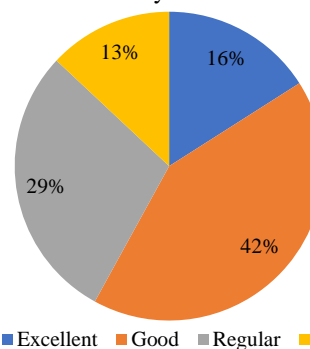
Results → Excellent: 27 people, Good: 71 people, Regular: 49 people, Bad: 22 people.

Graphic 5 Results of question 5
Source: Own elaboration

Interpretation of the data obtained in question 5:

It is determined that the application of the regulations in the Mechanical and Electrical Laboratory is "Good".

5. How do you consider the application of the regulations of the Mechanical and Electrical Laboratory?		
Answer	Opinions	Porcentage
Excellent	27	16%
Good	71	42%
Regular	49	29%
Bad	22	13%
Total	169	100%

Table 5 Values recorded in question 5
Source: Own elaboration

Among the questions asked, question 6 is asked qualitatively, due to obtaining information through comments, suggestions or observations regarding the Mechanics and Electrical Laboratory, it is important to mention that said question was established in order to collect data that later they allow the design of improvements based on antecedents, which, if well formulated, could be implemented within it.

Table 6 contains the responses obtained.

CHAGOYA-RAMÍREZ, Jorge Alberto, LAGUNA-CAMACHO, Juan Rodrigo, CALDERÓN-SÁNCHEZ, Javier and JUÁREZ-BALTAZAR, Claudia Montserrath. Analysis of the mechanical and electrical laboratory service at the faculty of electrical mechanical engineering of the Universidad Veracruzana in Poza Rica Veracruz, Mexico. Journal University Management. 2021

According to your personal criteria and for academic purposes, would you like to make any comments, suggestions or observations about the Mechanics and Electrical Laboratory?
The users participating in the survey state within their needs: - Updating of equipment necessary for practices in each of the Educational Programs. - Constant maintenance of main equipment. - Increase of practices within the laboratory. - Material available for practices.

Table 6 Values recorded in question 6
Source: Own elaboration.

Interpretation of the data obtained in question 6:

As previously mentioned, the purpose of this question is to obtain information based on direct opinions of the user, at the time of the interpretation of the answers it was possible to arrive at the analysis of a generation of research lines, which to give continuity to the This work can generate improvement designs and in turn considerably increase the desired quality levels.

Finally, it is of utmost importance for any Institution to have facilities that cover and satisfy the needs of each individual belonging to its Academic Community, in this case those belonging to the Faculty of Electrical Mechanical Engineering, that is why it is proposed in Question number 7 qualify the degree of satisfaction that the user has regarding the Mechanical and Electrical Laboratory.

Below is each of the ratings assigned by the *169 survey participants*.

Qualification	Frequency
1	0
2	0
3	0
4	0
5	13
6	14
7	28
8	76
9	33
10	5

Table 7 Values recorded in question 7
Source: Own elaboration

7. On a scale of 1 to 10, with 10 being the highest rating and 1 being the lowest. How do you rate your level of satisfaction with the Mechanical and Electrical Laboratory of the Faculty of Electrical Mechanical Engineering?
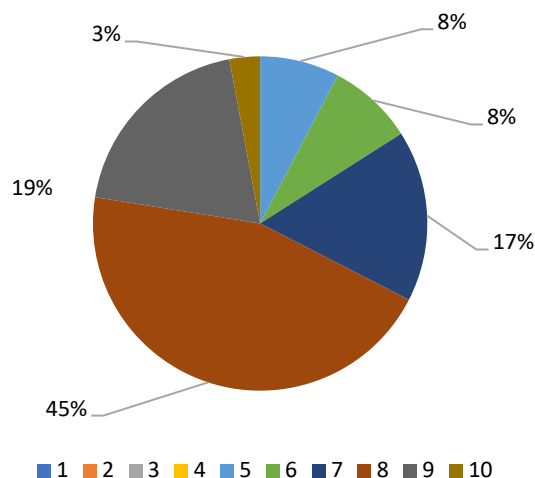
Graphic 6 Results of question 7
Source: Own elaboration

Interpretation of the data obtained in question 7:

Given the importance of obtaining current and realistic knowledge about the Laboratory's qualification, all this for academic purposes can be established that 45% of the sample considers that the degree of satisfaction provided is equivalent to an qualification of 8.

Importance of the Data Obtained

The importance of the data obtained lies in the analysis of the basic elements of the information obtained.

Each of the results obtained in the present work, generate a real perspective of the degree of satisfaction of the users who attend the Mechanical and Electrical Laboratory of the academic entity, in turn it is considered that the research is acceptable due to the favorable responses However, given the current demand of the educational world, it is necessary to design strategies that promote continuous improvement in each of the evaluated aspects, which in due course can be implemented in order to increase the levels previously obtained and thus achieving the desired quality to later achieve excellence.

Conclusions

Derived from the research it is concluded:

CHAGOYA-RAMÍREZ, Jorge Alberto, LAGUNA-CAMACHO, Juan Rodrigo, CALDERÓN-SÁNCHEZ, Javier and JUÁREZ-BALTAZAR, Claudia Montserrath. Analysis of the mechanical and electrical laboratory service at the faculty of electrical mechanical engineering of the Universidad Veracruzana in Poza Rica Veracruz, Mexico. Journal University Management. 2021

- This research generates new current knowledge of the degree of satisfaction of the services provided in the Mechanical and Electrical Laboratory.

- This work opens the possibility of creating analysis of each of the areas of the Faculty of Mechanical and Electrical Engineering, this in order to implement strategies that allow solving the problems that are obtained.

- After making each of the conclusions in the respective questions, we can identify that there are areas of opportunity in which to work later.

- Finally, it is important to highlight that the time invested in this work achieves the scope established at the beginning, which lies in generating new knowledge within this area, on the other hand, one of the limitations with which it had to be dealt with It is focused on the current health situation, all this because the students are taking each of their classes remotely, however, every Educational Institution has to adapt to certain conditions, likewise, the Faculty of Electrical Mechanical Engineering is characterized for being a dependency accredited by quality organizations that guarantee the quality of its educational programs and the teaching that is imparted through them, in the same way to highlight that the line of work to be followed as an Institution of Higher Education is to work with quality to achieve excellence.

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Academic tutoring as a tool for Social Responsibility in Higher Education

Tutoría académica como herramienta de Responsabilidad Social en Educación Superior

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Abstract

This article is part of a research whose general objective is focused on Identifying the impact of tutoring actions, for the improvement of the Social Responsibility activities of Accounting students in a campus of the National Technology of Mexico, they are also among the objectives carry out actions that strengthen mentoring to improve its efficiency

It is an exploratory investigation, a case study, where the current situation of students is investigated, who in a pandemic modified all their behavior when they stopped attending face-to-face classes and migrated to a life with a high degree of sedentary lifestyle, in which there have been cases of depression and they require the pertinent attention.

Anyone who has worked in education for some years knows that new generations of students have another way of perceiving the world, on the one hand they are more critical and analytical, but on the other they are less committed to activities that require effort, which is reflected with Jobs downloaded from the internet for example, or with great aspirations but requiring the least effort, because before children were interested in being a doctor, engineer, astronaut, etc., now they want to be youtuber, influencer…

Tutoring, Social responsibility, Student development

Resumen

El presente artículo es parte de una investigación cuyo objetivo general se centra en Identificar el impacto de las acciones de tutoría, para el mejoramiento de las actividades de Responsabilidad Social de los estudiantes de Contaduría en un campus del Tecnológico Nacional de México, también están entre los objetivos realizar acciones que fortalezcan la tutoría para mejorar su eficiencia.

Se trata de una investigación exploratoria, estudio de caso, donde se indaga sobre la situación actual de los estudiantes, quienes en pandemia modificaron todo su comportamiento al dejar de asistir a clases presenciales y migrar a una vida con alto grado de sedentarismo, en la cual se han dado casos de depresión y que requieren de la atención pertinente.

Quien ha trabajado algunos años en educación, sabe que las nuevas generaciones de estudiantes tienen otra forma de percibir al mundo, por una parte son más críticos y analíticos, pero por otra son menos comprometidos con las actividades que requieren esfuerzo, lo cual se refleja con trabajos bajados de internet por ejemplo, o bien con grandes aspiraciones pero que requieran del menor esfuerzo, pues antes a los niños les llamaba la atención ser médico, ingeniero, astronauta, etc., ahora quieren ser youtuber, influencer…

Tutoría, Responsabilidad social, Desarrollo de estudiante

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† Researcher contributing as first author.

Introduction

Academic tutoring is the means by which educational institutions have personalized contact with their students, which, beyond the teaching that is given in the classrooms, seeks to identify personal needs and be able to attend to them in the medical, psychological and academic aspects they come forward. The foregoing, seeking a comprehensive training, as well as a full development of the student.

For its part, Social Responsibility (SR) is a projection of the actions that organizations (according to their scope and application, there is Corporate or Business SR, Government SR, University SR, among others) carry out as part of the environment, to contribute to well-being; For this reason, through the Tutorials, in the academic context that purpose is applied (contribute to the well-being, in this case of the student community of the institution) by serving as accompaniment in their training stage.

This article is developed from a case study of an institution that belongs to the Tecnológico Nacional de México (TecNM), located in the state of Puebla in the Mexican Republic, and that in its short time of existence (18 years) has achieved national and international recognition for the work performed. Currently it has several certifications (ISO 9001: 2015, ISO 14001: 2015, ISO 50001: 2018 and under the norm of gender equality and non-discrimination).

It can be seen that directly in the area of SR, the institution does not have activities carried out, because the ISO 26000 standard has not been adopted, which is the one that corresponds to this issue, however, through 14001 and 50001 several points are touched that impact matter.

As an institution of Higher Education, when seeking well-being in the training of its students, several situations arise that, in the complexity of human relationships, must be overcome in order to be more successful in achieving the goals embodied in the institutional mission.

This article is made up of the sections that are exposed: Introduction, development, methodology, partial results, recommendations.

Development

Theoretical framework

Diaz (2017), comments that:

> The accompaniment through tutoring is essential for the student to achieve the construction of their own knowledge and acquire skills and abilities that allow them to feel more comfortable with their learning process, it is worth mentioning that one of the fundamental factors for the student to achieve Building your own knowledge is the support that the tutor provides and the way in which it generates new and diverse forms of teaching where innovative strategies and activities are created that motivate the student.

González (2005), cited by Diaz: proposes that tutoring should be aimed at strengthening and enabling the learning process from different aspects, that is, tutoring should legitimize a relationship at a professional, personal and academic level between the tutor and the student In this way, facilitating the construction of self-knowledge, it is important to mention that one of the key elements for tutoring in distance education to be a success is fluid and timely communication, this allows the accompaniment process to be more efficient. The educational orientation comprises a series of elements that are essential for the student to strengthen their integral development and acquire the competencies that allow them to prepare to face their personal, professional and academic life.

López, cited by Yon and Hernández (2015, p. 74), defines mentoring as:

> It is a training process carried out by the teaching staff that involves various actions that take into account the specificity of university training, as well as the needs of the student and is developed through a comprehensive personal support guidance system, with the aim of informing , support, advise and guide on the academic, personal-social and professional dimensions.

As mentioned by Arbizu et al. (2005), tutoring models contribute to university education. However, according to these same researchers, Spanish universities are essentially bureaucratic in nature, where teachers do not assume as their own some of the functions of orientation to students, functions that are claimed by students.

In addition to the above, Arbizu et al. (2005) refer to three tutoring models: the comprehensive model, *peer-tutoring* or tutoria entre iguales, and the academic tutoring model. And they clarify that there must be wills or possibilities of application and development, in addition to choosing the one that is strategically feasible to apply in each context.

1. The comprehensive tutoring model addresses the academic, professional and personal dimensions, promoting the comprehensive development of the student; It requires dedication, preparation and training of teachers regarding the roles to be played, a network of support services and a very small number of students: a maximum of 10 tutors. The role of the tutor is guidance / counseling, ranging from preparation for university integration, educational skills, helping to identify their learning difficulties to self-awareness and guidance during their school career. The student must develop an active role in the whole process, while the tutor teacher guides and helps (Arbizu et al., 2005).

2. The peer-tutoring model "arose in the Anglo-Saxon world" (p. 13), "(…), aims to offer advice and support for integration and success in university education for students. first cycle students" (Arbizu et al., 2005, p. 14).

3. Finally, the academic tutoring model, according to their own, is a teaching activity to guide and advise the student in each of the subjects; the teacher must design, plan, as part of his teaching function. (Arbizu et al., 2005)

A very important current characteristic of Higher Education Institutions (IES) in Mexico are increasingly showing greater interest in training people, so that they can meet current demands. Against this background, pedagogical processes must contribute to a formation that is capable of innovating, transforming, and forming competent individuals, prepared for life, autonomous and capable of being socially responsible citizens. (Guzmán, 2018).

González, cited by Diaz (2017): proposes that tutoring should be aimed at strengthening and enabling the learning process from different aspects, that is, tutoring should legitimize a relationship at a professional, personal and academic level between the tutor and the student In this way, facilitating the construction of self-knowledge, it is important to mention that one of the key elements for tutoring in distance education to be a success is fluid and timely communication, this allows the accompaniment process to be more efficient.

On the other hand, SR is a trend that occurs worldwide and that seeks to express the commitment of organizations towards their stakeholders, and its main standard is ISO 26000, which has seven fundamental subjects, and they can be seen in the figure 1.

Figure 1 Social responsibility: 7 core subjects
Source: ISO (2010)

Vallaeys (2014) uses the term University Social Responsibility (RSU) where he establishes the concept of a socially responsible university based on the management of the four impacts that an HEI always generates when it exists: the impacts that come from the organization itself, from its campus and its personnel (labor and environmental impacts); the impacts that come from the training it imparts to students; the impacts that come from the knowledge that it builds from its research centers and its epistemological assumptions, underlying its academic decisions, and finally, the impacts that arise from its relationships with the social environment, its networks, hiring, extension relationships and neighborhood, social, economic and political participation, territorial anchoring; HEIs must ensure that these impacts do not become negative for society and the environment. Figure 2 shows the relationship of the impacts of HEIs.

What is University Social Responsibility?
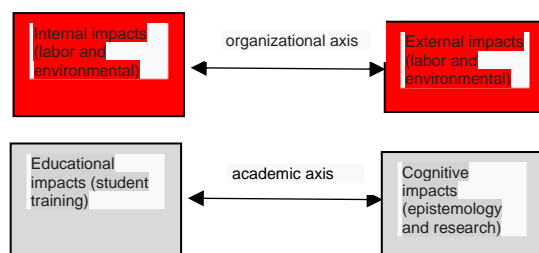**It is the fair and sustainable management of university impacts**

Figure 2 Impacts of HEIs according to the axes
Source: Vayaells (2014)

Reference framework

El Tecnológico Nacional de México, created on July 23, 2014, has its antecedents in the first Technological Institutes (IT), which emerged in Mexico in 1948, and Durango and Chihuahua were the states in which they settled, with the purpose of promoting regional science and technology. Shortly afterwards, those of Saltillo (1951) and Ciudad Madero (1954) were founded. As TecNM has only existed for 7 years, but as can be seen, its history is more than 70 years old, it is made up of 254 institutions, of which 126 are Federal Technological Institutes, 122 Decentralized Technological Institutes, four Regional Optimization and Development Centers Team (CRODE), an Interdisciplinary Center for Research and Teaching in Technical Education (CIIDET) and a National Center for Research and Technological Development (CENIDET).

El Tecnológico Nacional de México (TecNM) covers the 32 federal entities through the Technological Institutes, as can be seen in figure 3.

Figure 3 TecNM Coverage Map
Source: TecNM (2020)

The following information is presented through the Tecnológico Nacional de México (2015) portal: TecNM has a fruitful and solid tradition, built over more than 70 years providing superior technological education of excellence throughout the country. During that time the educational offer has grown, being at present, by educational level:

- Bachelor's degree
41 ducational Programs
- Specialization
7 Educational Programs
- Master's degree
50 ducational Programs
- PhD
15 Educational Programs

The campus where the investigation is carried out, the reason for this article, was founded in 2002, due to the allocation of its budget, is a Decentralized Technological (half of its resource is of federal origin and the other half is state), due to its geographic location is located in the state of Puebla, has an enrollment of approximately 2000 students distributed in 7 professional careers, and so far in its 18 years of existence has evaluated its academic programs in engineering areas through the CIIES , and has obtained the accreditation through CACECA of the career of the economic-administrative area; On the other hand, it is certified under the ISO 9001: 2015, ISO 14001: 2015 and ISO 50001: 2018 standards, as well as the gender equality and non-discrimination standard. From these certifications, the work and commitment of the technological community towards the environment can be appreciated, since as is known, the 9001 standards are for quality management, the 14001 aimed at caring for the environment, the 50001 towards energy management, with the above, there is a perspective in two aspects: that the structure of the institute seeks to comply with international standards that speak of institutional commitment and the second and most important, the training of future professionals in an environment of international regulations where they are immersed and that at the end of their training they will not be oblivious to these certifications, with which their employers will invest less in awareness, training and adoption of said schemes.

Methodology

Methodologically, this research is exploratory, and according to the scientific method corresponds to a deductive research, which aims to serve as a diagnosis in decision-making related to tutoring as well as social responsibility applied in a higher education institution technology, due to the impact it has on society, since the first of their responsibilities of Higher Education Institutions is the training of professionals, in addition to other activities that directly impact society such as: consulting to individuals and companies (institutions offering careers in the economic-administrative area), health care (in institutions where careers such as medicine, dentistry, nursing, nutrition or other related careers are offered), legal advice (training schools for law graduates), process improvement productive and / or systems development (careers in the area of engineering s), among others.

For the development of the research, the scientific method is applied, with the sequence shown in figure 4. Three moments of activity are observed: 1 the carrying out of preliminary activities such as the definition of the scope; 2 the development of work; 3 the interpretation of information and conclusions.
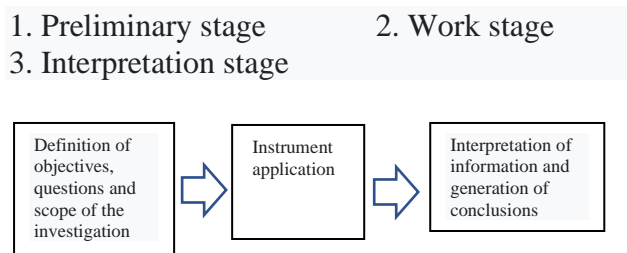
1. Preliminary stage	2. Work stage
3. Interpretation stage	

Figure 4 Stages of the methodology developed
Source: Own elaboration, based on the scientific method

Results

As has already been established, the study was carried out on the student community, which is made up of a population of more than 1800 students, of which a survey was applied to 5%, in the results obtained it is perceived that 80% of the students that make up the sample have heard about social responsibility (graphic 1), however, they do not know its scope.
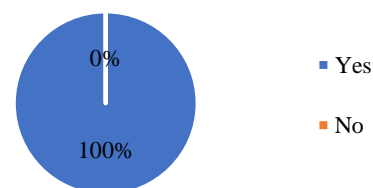
Have you heard about social responsibility?
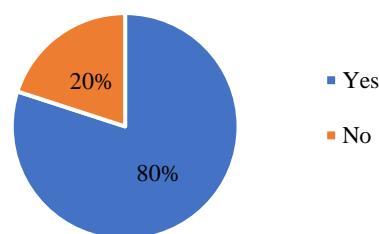
Graphic 1. Knowledge of the existence of SR
Source: Own elaboration

Graphic 2 shows the perception of the respondents on whether they consider that it should be applied in the Institution.

Do you think it is important to apply social responsibility in the institution?

Graphic 2 Students' perception of applying SR in the institution
Source: Own elaboration

As can be seen in figure six, all of the respondents consider that Social Responsibility should be applied in the Institution, which is favorable, since it allows to identify as an area of attention this issue that is not yet well known by the bulk of the population.

Another item, inquires about the knowledge that students have about companies that are currently recognized as Socially Responsible, of which it is appreciated that there are not many (only 25 percent) of the total of respondents who answered affirmatively; However, those who did it did recognize companies such as Coca-Cola Femsa, HP, Cemex, among others, which are a source of study and analysis for the success of the programs they apply inside and outside the organization.

In this regard, Mazzotti, Aguilar and Vargas (2016) expose various aspects that are worthy of imitation by other companies, as they are precursors of support to society, for example, the mining company with Canadian capital Goldcorp Inc., concessionaire of 67% of the Mining projects in Mexico, as reported on its page has, in Peñasquito, Zacatecas, offers scholarships to students for their first job, support for resident students and many others that have been awarded for six consecutive years the award of "Corporate Social Responsibility" that awarded by the Mexican Center for Philanthropy (CEMEFI).

In relation to the section of the instrument that relates to tutorials and their impact on SR, it was possible to obtain that those who participated in the study are in a moment of tension, because at this time of pandemic, with uncertainty about the There is still time to return to normality, without having the vaccination scheme to be able to have a greater degree of confidence in their social interaction, because many have lost relatives and / or acquaintances in this time, which at the beginning of this quarantine was said that only elderly people became ill, and today it has been seen that this is not the case; Likewise, the vaccine does not ensure that one cannot be infected, since many vaccinated later have contracted the disease, among other points of said uncertainty.

Regarding the activities that are considered in the tutoring program, Graphic 3 presents the perception in this regard.

Perception about activities in tutoring
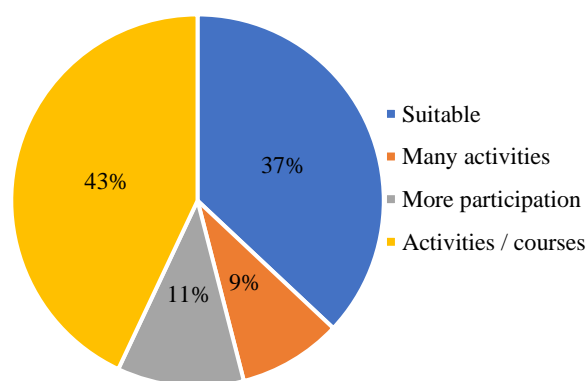
Graphic 3 Perception of tutorial activities
Source: Own elaboration

The figure shows that 9% mention that there are many activities, 11% indicate that there should be more participation in tutorials by students and tutors, 37% consider it adequate and the remaining 43% indicate that there should be more activities, workshops or courses that discuss issues of improvement such as: leadership, motivation, life plan, conflict management, employability, entrepreneurship and SR.

Conclusions

As already mentioned, there is still no final conclusion, because the work has not been carried out to completion, but it does coincide with Martínez (2017), who states that: Tutoring is not restricted to training, Rather, it extends further, monitoring the training process and stimulating personal and professional maturity, with a clear projection towards autonomous learning, inquiry and professional performance. The ideal is a comprehensive, formative, commitment and mutual responsibility tutoring.

Clerici and Da Re (2019) point out that: The word "tutor" is of Latin origin and is derived from the noun "tutor", the adjective "tutus" and the verb "tutari", that is, "the one who cares, who supports , protects, giving security ", if it refers to the noun, and if it refers to the verb" protect "," defend "; with a sense of care, protection and / or vigilance.

Arraiz, Berbegal and Sabirón (2018) detail that: "Academic tutoring is included among the practices with the greatest prominence and potential in university guidance from the benchmark of lifelong learning."

Similarly, as the CSR survey describes, among the multiple benefits of adopting a SR scheme, the main 8 perspectives revolve around:

- Financial-economic (cost reduction, business improvement and competitiveness).

- Improvement at the internal level of the company (general well-being of employees, job security, benefits for employees, etc.).

- Ethics and development of internal values (feeling of identity, belonging, motivation and cultural change).

- Orientation to interest groups (benefit and satisfaction of clients, suppliers, shareholders, etc.).

- Environmental projection (reduction of sources of pollution, energy saving, recycling, initiatives in general in favor of the environment).

- Social projection (support for communities, vulnerable populations and well-being of the country in general).

- Business sustainability (Continuity and strengthening of the business hand in hand with practices, policies and initiatives in CSR).

- Recognition and strengthening of image (positive brand image, attraction of human talent, etc.).

Of these points, the following stand out as applicable to the impact of this research: ethics and the development of internal values, orientation with interest groups (considering that, in education, the client is the student), environmental projections and social, because through them the care of the environment and the applicable legislation is sought in the first place, and the activities carried out towards the population where the institution is immersed.

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Reflecting between evaluation and teaching practice. Re-visions and challenges

Reflexionando entre la evaluación y la práctica docente. Re-visiones y retos

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Abstract

The evaluation and the teaching practice are subjects of great importance in the educational field, and objects of study of research centers and higher education institutions. In this sense, this article shows some reflections as a product of the first phase of research, currently under development, about teacher evaluation in higher education, closely linked to the practices developed by academic staff at this level. educational. The first point that we present is made up of the latest reforms to Article 3 of the Constitution, the maximum normative reference for education in Mexico. Next, a brief overview of the recent history of the evaluation of education is made and its relationship with the much-touted quality is analyzed. A third section is made up of a series of discussions and analysis on teacher evaluation, opening the debate about whether it is worth reconsidering the concept, given that the original purpose of this has been perverted, as we establish in the following subtopic. The conclusive lines call for the urgency of recovering the essence of evaluation, as a means for the improvement and transformation of ourselves, as educators, and of our world, based on our contexts. We accept that if, as a result of the improvement of our practices, we achieve a salary or ladder promotion, welcome; but we make a call to uphold the original meaning of the evaluation.

Teacher evaluation, Teaching practice, Higher Education

Resumen

La evaluación y la práctica docente son temas de gran trascendencia en el ámbito educativo, y objetos de estudio de centros de investigación e instituciones de educación superior. En este sentido, en el presente artículo se muestran algunas reflexiones como producto de la primera fase de una investigación, actualmente en desarrollo, en torno a la evaluación docente en la educación superior, estrechamente vinculadas a las prácticas que desarrolla el personal académico en este nivel educativo. El primer punto que presentamos lo constituyen las últimas reformas al artículo 3° Constitucional, máximo referente normativo de la educación en México. En seguida, se hace un somero recorrido por la historia -reciente- de la evaluación de la educación y se analiza su relación con la tan traída calidad. Un tercer apartado queda conformado por una serie de discusiones y análisis sobre la evaluación docente, abriendo el debate acerca de si vale la pena reconsiderar el concepto, dado que el original fin de esta se ha pervertido, como lo establecemos en el subtema siguiente. Las líneas conclusivas llaman a la urgencia de recuperar la esencia de la evaluación, como medio para la mejora y la transformación nuestra, como educadores, y de nuestro mundo, a partir de nuestros contextos. Aceptamos que si, como producto de la superación de nuestras prácticas, logramos un ascenso salarial o escalafonario, bienvenida; pero hacemos un llamado a sostener el sentido original de la evaluación.

Evaluación docente, Práctica docente, Educación Superior

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Introduction

Just as it is impossible to think about education in a neutral way, it is equally impossible to think of a neutral evaluation of it.

[...] If from a progressive point of view, educational practice should be, coherently, a truth-revealing and non-concealing doing, from a reactionary point of view it is not always.

Paulo Freire

To refer to the evaluation in Mexico is to address a "hot" topic, of great importance and current relevance. The first adjective, although perhaps not the most appropriate -from an academic and professional point of view-, does respond to the "heat" that has awakened (and continues to awaken), both in a large part of the teaching profession, at all levels of the National educative system; in parents (divided between annoyance because their children, at certain times, stopped receiving classes, and concern about the results of standardized tests and learning assessments, in general); and, above all, in the authorities of the Ministry of Public Education (SEP), of the defunct National Institute for the Evaluation of Education (INEE) and the current National System for Continuous Improvement of Education, in charge of "conducting studies, research specialized and diagnostic, formative and comprehensive evaluations of the National Educational System "(section IX, subsection a of Article 3 of the Constitution). These organizations, despite being directly linked to the evaluation (and demonstrating the importance it has been given), have not been able to establish an entity that is known and recognized by all the actors involved.

This importance of evaluation, in the case of academic staff, is related to teaching practice, another highly relevant concept that constitutes the object of the teaching evaluation applied to teachers, in this case, higher education teachers by the students. This link can be appreciated in what Balderas and Ochoa (2021) express: "teacher evaluation is part of different educational models that, due to their characteristics, become a way to identify weaknesses and strengths related to teaching practice" (p. 109).

In the latest amendment to Article 3 of the Constitution, dedicated to education in Mexico (May 15, 2019), it is established that "male and female teachers are fundamental agents of the educational process and, therefore, their contribution to the social transformation is recognized". Such recognition implies that the work of the teachers is transcendent to achieve the aims of education and to comply with the criterion that: "it will be of excellence, understood as the constant comprehensive improvement that promotes the maximum achievement of student learning, for the development of their critical thinking and the strengthening of ties between the school and the community" (section II, item i).

However, the recognition of the importance of evaluation, as a means to achieve excellence and continuous improvement in education, does not mean that all obstacles have been overcome, much less that work is done with the same intensity and efficiency. with all "evaluable" objects and subjects. Therefore, considering the complexity and breadth of the subject, the objective of this article is to reflect on the evaluation and teaching practice in higher education and, to facilitate its understanding, we will start from a review of some of its milestones, with a historical perspective.

From the methodological point of view, in the first phase of the project (which will be explained mainly in this text), a documentary research was carried out, together with the traditional method of analysis and synthesis, as well as an investigation with a qualitative approach. On the other hand, in the development of the article, some reflections about the concepts addressed, their complexity and how the purposes of the evaluation have been distorted to it.

Finally, and, by way of conclusions, the need to reassess and recover the original meaning of the evaluation is based, the aim of continuous improvement, in line with the ideals set forth in the Political Constitution of the United Mexican States, and the hope of that, despite the fact that there is still a long way to go, the current stage in which we are living allows us to trust that the evaluation will overcome the new challenges and will become a function of a better education, as the Mexican people deserve.

Methodology

The methodological approach of this project has been based on a mixed investigation, with emphasis on a qualitative methodology, conceived from a holistic perspective that is essentially oriented to people in specific settings and is viewed as a whole and not in a fragmented way considering that "in qualitative research one speaks of the need to achieve and ensure obtaining the real and true situation of the people being investigated" (Álvarez-Gayou, 2006, p.31).

On the other hand, a characteristic of educational research is its flexibility since both the questions that are taken as a starting point and the data collection strategies are established and consolidated in the course of the study. Something very significant is that researcher's approach and learn from people in their context, they try to identify with these people, to be understanding, respectful and, in essence, humanists (Álvarez-Gayou, 2006).

In particular, for the first phase of the development of this project (which is reported in this article), the documentary research method was used, understood as the construction of knowledge from sources, as "a way of ensuring the tradition of original thought, and bring it to the present with a hermeneutical reading that favors discussion by making new contributions to scientific development" (Gómez, 2011, p. 230). In recent times, the return to the sources, to the documents that give an account of the original thought or proposals has become a necessity, which allows dialogue with the authors and the construction of new knowledge from the expression, the logic and the arguments offered by reality itself.

Due to the breadth and complexity of the problem in question, the search for documents was oriented, not only to evaluation in general and teacher evaluation in particular, but also to other related and no less important issues such as: teaching practices, teaching practices educational strategies, didactic strategies, curricular evaluation and Information and Communication Technologies (ICT), especially in these times of the Covid-19 pandemic.

For the research, other classical methods such as analysis and synthesis were considered and two more phases were established: The second, for which a questionnaire with multiple-choice questions, mostly, and some open questions, which is in the process of validation was developed. And, the third phase, with interviews with teachers, in order to deepen their considerations regarding evaluation and teaching practices.

Re-visions around the evaluation and quality of education

The purpose is to strengthen the evaluation as an instrument for accountability that allows to improve objectively and achieve the educational quality that the country needs and deserves.

Alliance for the Quality of Education (2008).

In Mexico, many agree that evaluation policies are recent. In this development, four periods are distinguished:

1st - Starting in the 1970s, when the first learning evaluations were carried out in primary education. At that time, higher education still depended on the SEP, because, despite the fact that some organizations such as the National Association of Higher Education Institutions (ANUIES) already existed, it was until 1980 that this educational level was achieved, by constitutional decree, it will reach its autonomy. As stated in the Explanatory Memorandum of said decree: "To invoke university autonomy is to point out the possibility that these communities have had for 50 years at the national level to guarantee higher education and offer it within the reach of the people" (DOF, Monday June 9, 1980).

With the essential purpose of promoting evaluation, as a means of improving education, various programs and organizations were established for this purpose. Thus, in 1984 the National System of Researchers was created, the first program aimed at evaluating one of the essential functions of the higher level: research, and the products generated by its development.

2nd - In the 1990s, a broad set of evaluation instruments was implemented with various objectives, among them: "the allocation of incentives to teachers". From this perspective, the Teaching Performance Scholarship Program (1990) emerged, which constitutes the antecedent of the Teaching Personnel Performance Incentive Program (ESDEPED), one of the evaluation systems for higher education teachers that remains in force.

Another important event, and directly related to the Scholarship Program, was the development of the Teaching Career Program in 1994 because both linked the evaluation to economic benefits or salary compensations.

3rd - In 2001, during the government of Vicente Fox, a strategic role was given to the evaluation of education. The following year the National Institute for the Evaluation of Education (INEE) was created, an organization that in 2013, reconformed and with new powers (in accordance with the provisions of the amendment to Article 3 of the Constitution of that year, became an autonomous body , with its own patrimony and in charge of coordinating the National Educational Evaluation System), in order to promote the evaluation of the professional teaching service, for the admission, permanence, promotion and recognition of teachers and, in general, of the Mexican Educational System.

4th - With the latest amendment to Article 3 (May 15, 2019) the conception of education in the country has changed. The previous emphases were excluded: on teacher evaluation (considering that it was due more to a labor reform than educational and that the rights of female teachers and male were violated) and on quality, which was eliminated from the text of the Magna Carta. and it was replaced by excellence and continuous improvement. The foregoing is explained in the National Development Plan 2019-2024: "in the past six-year term a misnamed educational reform was carried out, which was actually a labor counter-reform, contrary to the labor rights of teachers" (DOF: 12/07 / 2019).

From the above, it follows that academics, as "evaluable" subjects, still have the responsibility of constantly evaluating how their performance is, and how they are contributing to the fulfillment of the Institutional Mission and Vision and to the achievement of the objective supreme of raising the quality of education.

From this perspective, higher education professors are subjected (invited in the official discourse) to various evaluations, both external and internal. Among the latter, the processes of teacher evaluation and the awarding of categories stand out, as well as the Program of Incentives to the Performance of Teaching Personnel (ESDEPED), which served as the basis for presenting advances in the research project that we are developing.

Reflections on evaluation and teaching practice: rethinking the concepts

If you think about the quality of education in a country, it is inevitable to do so in relation to the quality of its teaching staff. Hence the priority that most educational reforms grants to the strengthening of the teaching profession.

Organization of Ibero-American States for Education, Science and Culture (OEI), 2010

Undoubtedly, in the educational field there is consensus regarding the importance of teachers, educators or professors (terms identified as synonyms in the General Law of Education of Mexico), in the teaching and learning processes. And, in this same sense, the need to evaluate, to assess, the ability to teach (or, in recent times, the teaching skills to "make" students learn) is recognized, together with the results of what has been learned by students, to the appreciation of how "prepared they are for life" - considering one of the many pedagogical ideas of José Martí: "Since you live, it is fair that where you teach, you teach to know life" (1999, p.50) -, and what has been the participation of academic staff in this "preparation" and in the quality of this learning.

Generally, "quality evaluation" refers to educational programs and not strictly to the quality of learning, to the quality of knowledge acquired by students and even less, to the quality of teaching practices and performance of teachers as "mediators" in the acquisition of this knowledge and, furthermore, in the achievement of a "comprehensive training", so repeated in institutional missions and in political discourse, and so unreal and "liquid" (following the Zigmunt Bauman's metaphor) in educational practice.

However, this does not mean that teachers are not evaluated, but rather that it is very difficult to "measure" the results of the quality of their training action. Therefore, it is necessary to state that teachers in Mexico are subjected to internal evaluations - or those carried out by the Higher Education Institutions (IES) themselves - and external evaluations in which organizations and programs established for this purpose such as PRODEP (Programa for the Professional Development of Teachers for the higher type, formerly PROMEP, promoted by the Ministry of Public Education) and the National Council of Science and Technology (CONACyT) through the National System of Researchers (SNI).

Although in the official discourse both types of evaluations and, in general, all those that are carried out, have the objective of "contributing to improve the Quality of education", (article 7 of the Law of the National Institute for the Evaluation of Education, LINEE), and special emphasis has been made: previously, on the 2013-2018 National Development Plan through Goal III "Mexico with Quality Education" which, within the Lines of Action, "Strategy 3.1.1. Establishing a system of teacher professionalization that promotes the training, selection, updating and evaluation of teaching staff and technical-pedagogical support "proposes" stimulating institutional programs to improve teaching staff, teaching performance and research […] "(underlined is ours), in practice they are more directly connected, on the one hand: to the indicators considered as the main international rankings, fundamentally related to the academic production of teachers and researchers in higher education; and, on the other hand, to incentive systems for teachers, with different levels, linked to economic benefits or salary compensation, according to the results of the evaluations carried out.

It should be noted that the new General Education Law, indirectly, considers evaluating, through the Planning and Evaluation Committees of each School Technical Council, "which will be in charge of formulating a continuous improvement program that contemplates, an integral manner, […] training and teaching practices" (Article 109).

With regard to teaching practice (without the intention of delving into this article and, only to define it, due to its relationship with evaluation), it constitutes a highly complex concept, fundamentally because it is linked to people who have a pedagogical relationship: some in function of teaching others identified as "learners", in a classroom context or outside of it, although, in reality, everyone learns since it is a practice that exists only in relation to the practice of students.

For some researchers, teaching practice refers to a set of actions, facts or events that are carried out in interaction with another set of similar events among which what is established as "educational" occurs. However, not all teaching practices meet the original objective or can be considered as educational because they lack the necessary involvement of the subjects (or one of them), the required voluntary interaction between them, or the interweaving and disarticulation of some of the components that are needed to achieve their "educativity" (Galván, Ibarra, van Dijk & Lozano, 2016).

Other scholars start from the idea that one should not speak of educational practice but rather of educational practices (plural), although they coincide in its conception as a set of actions and operations articulated in a certain way, characterized in that it is deployed intentionally (intentionality), systematic (objectivity) and continuous. Likewise, it is necessary to consider the degree of awareness of these actions, especially if they are to be properly educational (Bazdresh, 2000).

Regarding the components of these practices, six sets of constituent elements are conceived:

The context (social, historical, cultural) of the practice; the subjectivity of the participants (students, teachers, directors, managers, authorities, subordinates); the intersubjectivity between the participants, the content in question (especially its scientific or technical rationality); the model or form and articulated situation used consciously or not by the teacher (director, supervisor ...) to present the content, and the characteristics of the cognitive process (or to understand) actually built in the pedagogical relationship (Bazdresh, 2000, p. 48).

On the other hand, the relativity of the very concept of quality of education must also be considered, taking into account the proposals of great pedagogues such as Paulo Freire, who dedicated several of his works to these aspects of "education and quality":

Precisely because there is no substantive quality […], a quality of which it is said: this is quality, we have to approach the concept and inquire about what we are talking about. It is precisely then when we perceive that there are qualities and qualities […], that is, value that we attribute to beings, to things, to educational practice (2001, pp. 46-47).

All this leads us to ask ourselves several questions and, above all, to question the real impact that these external evaluations have on teachers, and those carried out internally by the institutions, in raising quality.

Evaluation for improvement? Per-versions of the concept

Another line of our reflections is oriented towards IMPROVEMENT (thus, with capital letters) as the essential beginning and the last end of the evaluation. We consider this definition of evaluation as the most genuine and close to its essence. However, throughout its recent history, these laudable purposes have taken other directions. The original version has deviated, leading to what we consider to be some per-versions of the concept.

The first definition of evaluation as improvement can be synthesized in the position of Paulo Freire, for whom "The evaluation of practice is an important and indispensable factor for the training of the educator" (2005, p. 14).

From this initial synonymy, it was soon passed to evaluation as an instrument for salary improvement, one of the most heartfelt per-versions, and launched by neoliberal policies to make teachers' incomes competitive, granting rewards as they were. being the results of their evaluations. The truth is that the competitive salary was switched to competition - not always loyal - among the teaching community itself. The evaluation was distorted when it was associated with salary "benefits", and, even worse (in basic education), by not losing the level once reached, it could have stimulated the accommodation of some and demotivation in others.

Inevitably, the opposite result of gratification is the punishment (real or intangible) of evaluation. Thus, evaluation becomes synonymous with sanctioning, depriving, threatening (even losing one's job), if it is not presented, it is not approved, it is not improved. This is one of the per-versions that does not help to improve anything.

As regards higher education, the Teaching Personnel Performance Incentive Program (ESDEPED) has become an equally "perverse" mechanism. There, the competition seems to be from the teachers with the Institution, which seeks to take care of the never enough economic resources and designs increasingly higher indicators to obtain the levels of stimulus. In most institutions of higher education (IHE), the evaluation is carried out annually, and in each one it is possible to participate, improve, or lose the level obtained in the previous time. Every year, then, an evaluation must be presented, and the bonuses obtained are not integrated into the salary, as is the case in basic education.

Precisely in higher education, another of the perversions of evaluation is to take it as competition between colleagues and peers. The end was very good: that those who evaluated had a perfect knowledge of the area; mistrust (surely arising from empirical indicators) has now led the invited evaluators to make a declaration of not having conflicts of interest with those evaluated.

Some lines for future conclusions and new challenges

Considering the great complexity of the evaluation and teaching practices, the diversity of constituent elements and of interactions with these and with other related aspects, the limitations that a very general study implies, based on a documentary review, must be recognized; and, in addition, it is worth mentioning that the practices refer primarily to the teaching part, which is more closely related to teaching, to the performance of the teachers in the classroom and in the school environment.

Among the challenges to be highlighted, it is urgent to recover the original meaning of evaluation as an assessment, as giving value. Perhaps for this, it is necessary to review the concepts, aims, means and techniques of educational evaluation in general and teacher evaluation specifically. As Popham (1990) advises: "Evaluating is an activity inherent to all intentional human activity, so it must be systematic and its objective is to determine the value of something."

Accepting and acting in accordance with the above implies reprogramming, rectifying, taking a qualitative leap that serves as a starting point for a new "re-valued assessment" by all the protagonists. It is to bestow a sense of far more scope than immediate results and ephemeral recognition. We can once again hear the educator of educators, Paulo Freire, when he said that evaluating is "verifying if the practice is leading us to the realization of the dream for which we are practicing" (2005, p.14).

Although, in theory, it is clear that "proposals to improve the situation of teachers must be based on contextual and comprehensive approaches, which take into account all the factors that contribute to facilitating the work of teachers" (OEI, 2010, 134), much remains to be done to recover the essence of the evaluation, which is IMPROVE; It is necessary to build and build that necessary, genuine, laudable and legitimate bridge between the evaluation and continuous improvement of people, performance, profession, and education. Because, finally, "You cannot improve the educational action of teachers without achieving, at the same time, higher levels of quality in the operation of schools" (OEI, 2010, 134).

As it corresponds to the evaluation of teaching performance, "it is about concentrating national efforts in achieving a profound educational transformation through which today's Mexicans take the destiny of the nation in their hands and achieve the realization for future generations of a Mexico that achieves what it proposes" (National Development Plan 2007-2012). It would be naive to expect that improved education will transform an entire social system as unequal as the Mexican one, but we agree that "[without education] this transformation will not occur" (Freire, 2005, p.59).

Thus, in that same dream and very hope of transforming the world, our world, educators are called to take evaluation as the tool to improve ourselves, day by day. If the results of these practices lead us to obtain a salary improvement, welcome; but we cannot lose ourselves in the belief that this (perverted) end of education is an end in itself. Education is much higher ideals and sights.

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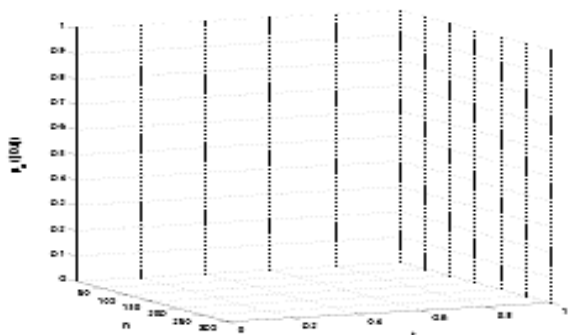
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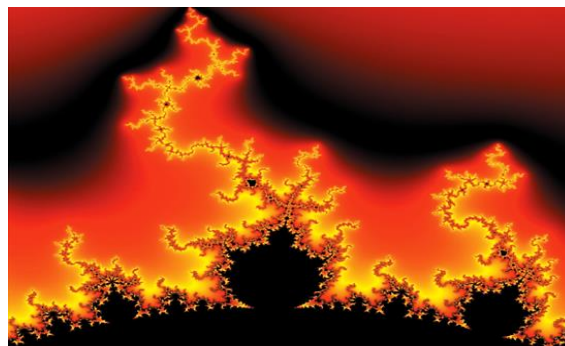
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