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THE EVALUATION AS A WAY FOR THE IMPROVEMENT OF THE PROCESSES. AN EXAMPLE THAT FACILITATES ITS UNDERSTANDING

LA EVALUACIÓN COMO VÍA PARA EL MEJORAMIENTO DE LOS PROCESOS. UN EJEMPLO QUE FACILITA SU COMPRENSIÓN

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ABSTRACT

Introduction: the evaluation of every process includes three functions: diagnosis, evaluation and improvement. The latter is achieved through the Deming cycle. In the present article the description of the role of the systematic evaluation for the improvement of the processes is outlined by means of an example. *Objective:* to describe by means of an example, the role of evaluation for the improvement of processes. *Development:* the functions of the evaluation are presented, seen in the management of science and technological innovation in Health Technology, as a branch within Medical Education. The advantages of the Deming cycle are exposed, the importance of systematically carrying out the evaluation, as well as the basic principles of evaluation assumed by the example presented here. *Conclusion:* the importance of the systematic evaluation of processes is recognized, with the consequent elaboration of the plan for the improvement in each reinstitution cycle, previous identification of new insufficiencies, its causes, needs of learning, reorganization of resources.

Keywords: *evaluation, improvement*

RESUMEN

Introducción: la evaluación de todo proceso contempla tres funciones: diagnóstico, valoración y mejora. Esta última se logra mediante el ciclo Deming. En el presente artículo se esboza mediante un ejemplo, la descripción del papel de la evaluación sistemática para el mejoramiento de los procesos. *Desarrollo:* se presentan las funciones de la evaluación, vistas en la gestión de ciencia e innovación tecnológica en Tecnología de la Salud, como rama dentro de la Educación Médica. Se exponen las ventajas del ciclo Deming, la importancia de realizar de forma sistemática la evaluación, así como los principios básicos de la evaluación asumidos para el ejemplo que aquí se presenta. *Conclusión:* se reconoce la importancia de la evaluación sistemática de los procesos, con



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la consecuente elaboración del plan de mejora en cada reiniciación del ciclo, previa identificación de nuevas insuficiencias, sus causas, necesidades de aprendizaje, reasignación de recursos.

Palabras clave: *evaluación, mejoramiento, proceso, ciclo*

INTRODUCTION

The contemporaneousness in which universities develop as educational agencies gratifies them to become innovative universities, capable of transforming not only human resources but also the environment that surrounds it from reflective positions and constant and systematic improvement. Considering evaluation as an opportunity for diagnosis, assessment and improvement, where educational actions are included mediate the transformations that should be achieved by the evaluated, evaluators and the context in which the training processes are developed.

Today the training processes carried out in the School of Health Technology, must be preceded by the integration between teaching, assistance, research and social interaction, which in turn is based on a clinical approach, Epidemiological, technological health and inclusive, conditions that inevitably lead to upward development.

If we understand Health Technology, as a branch of Medical Sciences, dynamic, interdisciplinary, multidisciplinary, with a broad scope of study and field of professional performance, which is compromised by the introduction of updated biomedical technology in all health services, and that others determine the quality of the application of technological health procedures in each of the specialties, then we are able to understand the role of evaluation in the processes as part of the constant need for improvement, which must be a determining part in an Innovative University, which has the responsibility of maintaining the quality of the processes that it directs. It looks for ways to make this systematic improvement in tune with its own development and the need for a human resources prepared to assume its profession.

Evaluation have being theorized by several authors with coincident points, which is a reality that when talking about the evolution of man in any of its areas of development is present the evaluation from its most general diagnostic, evaluative, educational, instructive, developer and conducive to the formation of value judgments for decision making, actions that lead to an improvement, which is based precisely on scientific research in a closed cycle.

Royero ⁽¹⁾ refers that the evaluation represents the feedback of the system, since the results of the management are verified in relation to the objectives that were raised. On the other hand, Mantilla and Garzón, ⁽²⁾ outline the importance of the culture of self-evaluation as a practice of continuous improvement and organizational development.

The Health Technology Assessment (HTA) is defined by Columbié Pileta ⁽³⁾ in 2018 "as the process of obtaining useful information, during the Technological Health Process that each HT professional faces, to formulate value judgments that favor making decisions and establishing improvement plans, based on scientific research."⁽³⁾

In the opinion of the researchers with whom the authors agree, the evaluation as a process and result is not focused on the point of arrival, that is, on the results of the evaluation process, but on the management of the evaluators to suggest and develop , the actions that are developed along that process and that lead to the obtaining of those results, determined by the five functions of the management (planning, organization, integration, direction and control), here assumed and integrated with the functions of the evaluation (diagnostic, educational, evaluative and improvement).

Sometimes the evaluation is only oriented to the result as the ultimate goal and not to the way, determined by the management process that gave rise to it, hence this article proposes an example of how to evaluate the results of



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science and technological innovation in HT from conceiving the process of managing those results and their improvement.

The objective of this article is to describe by means of an example, the role of evaluation for the improvement of processes. The selection of the example of the evaluation of the management of science and technological innovation, was based on the fact that the development of this STI process, serves as a support to the solution of the teaching, managerial, extension, assistance and research problems that occur in the university context or in the health area.

DEVELOPMENT

It is not a secret that today's universities should be innovative, responsible for the management of science processes and technological innovation, their scientific and research results should be based on the satisfaction of social needs, in the specific case of Health Technology as an innovative university should be set new goals and goals to achieve based on continuous improvement.

The fulfillment of these new objectives and goals aimed at improvement are supported by a process of evaluation of the management of science and technological innovation, which is a complex procedure, designed to evaluate the way forward to reach the pre-established objective;⁽⁴⁾ that is developed in order to improve the object of study;^(5, 6) characterized by the creation of standards related to the comparison of achievements with respect to goal^(7, 8) is made at the beginning of the investigation to identify insufficiencies and potentialities of the phenomenon.^(5, 6) Hence, the authors consider that the evaluation of the management of STI in HT is educational, formative, criteria, and diagnostic.

The achievement of the improvement of the process has as a platform the education of those involved in the process in terms of the need for evaluation as the way to achieve the goals and of course the fulfillment of the objectives set from positions respectful, creative, cooperative, hence the functions identified by Torres and collaborators⁽⁹⁾ related to educational evaluation. These are contextualized as follows:

- The diagnostic function: corresponding to the knowledge of the status of the evaluated object. It becomes clear, by allowing the characterization of the current state of management at the individual, departmental and institutional level, it is possible to identify potentialities and inadequacies that become an important informative resource for the actions to be carried out in order to raise the quality of STI management in this professional.
- The evaluation function: referred to the preparation of the evaluated object, by contrasting the real state and its ideal state. It is expressed by the design of indicators and standards that allow the assessment of this management in correspondence with the initial objectives of the process, which are in line with the ideal state that is desired to be achieved. The continuous and systematic collection of data related to the operation of the object of evaluation is organized throughout the intermediate period of time for which the achievement of the objectives, because the data is taken in relation to the components that are going to be evaluated. An objective and consistent assessment of the researched object is obtained.
- The improvement function: associated with the commitment to improve the evaluated object, through decision making. Sustained in the broad participation of the members. Continuous improvement as a basis for the new objectives and goals to be achieved in higher education institutions, demanded by the contemporary environment,⁽¹⁰⁾ can be achieved by identifying opportunities for improvement and preparation of the plan.

The analysis carried out up to this point gives the authors the possibility of proposing from the identification of the functions of the evaluation of the management of STI, which takes into account the need to educate the evaluators and evaluated in this process to achieve the desired improvement, after developing a group of actions that go beyond the supervision, that favor the adequate management of STI in HT, which can be directed to a better planning, organization, integration, direction and control of it.



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In order to guarantee the continuous improvement of STI management in HT, it is considered appropriate to use the Deming Improvement Cycle (by Edward Deming), also known as PDCA circle (in English: plan-do-check-act, in Spanish PHVA: planificar-hacer-verificar-actuar) or spiral of continuous improvement, or PDCA methodology.⁽¹⁰⁻¹⁵⁾

The authors consulted about this improvement cycle agree that it is a simple technique that is applied every time a new project is started both personally and institutionally, it is considered a fundamental tool or technique if the constant improvement is conceived, its conditioning fundamental to achieve the fulfillment of the objectives and goals is in the order of execution and do not disregard any of the steps.

The following figure is a summary of it, where each activity is framed in an endless cycle.

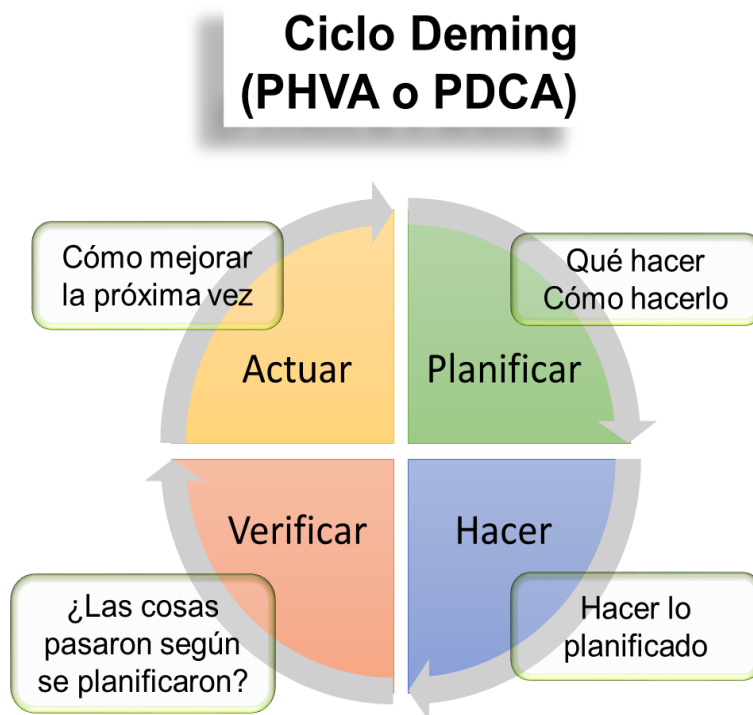


Figure 1. Deming cycle.

This cycle offers different advantages,⁽¹²⁾ which, seen in the evaluation of STI management in HT, are as follows.

- Ensures the existence of a plan for continuous improvement that guarantees the proper management of assumed process.
- Ensures the analysis, verification and elimination of the causes of the most probable errors during the process.
- Facilitates the implementation of controls to monitor and manage the new improved management process.



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- Creates the conditions for permanent training and / or improvement and the updating of the documentation required in each improvement cycle.
- It avoids the reappearance of the reasons that cause the problems, by means of the new standardization of the indicators as a guarantee of the improved process.

In the opinion of the researchers, the importance of carrying out systematically the evaluation of the management of STI in HT to improve the process, is given for several reasons that are listed below:

- The self-assessment carried out by the HT professor in terms of his personal development at STI, allows him to know where he should redirect his efforts to reach an adequate standard in each of the dimensions and in a general way, taking into account the requirements to meet according to their teaching category and the individual development plan.
- When developing an evaluative and investigative culture at the institutional level, which becomes a philosophy of work and life, the management evaluation indicators that are proposed constitute a measuring tool for the state of STI management of the department and the institution.
- The development of indicators is a more reliable instrument of where the TI policy should go in HT, in order to solve the practical problems that arise there or in their environment.
- Contributes to assess the quality, scope and feasibility of research projects, in addition to ensuring that the research meets the standards established in each discipline or disciplinary field.
- Resources are reduced (material, financial, human), efficiency increases, time is reduced and there must be an increase in the control and quality of research production.
- Errors are reduced, prevention is helped, and this redirects and strengthens the STI management process of the scientific community, for decision-making regarding the proposal of innovative practices.

By taking into consideration the basic principles of evaluation, ⁽⁵⁾ the authors assume and state them for the evaluation of the STI management in HT.

- Integrated: the evaluation of the management of STI in SHT should be conceived as an integral part of the STI management process.
- Technique: the evaluation instruments and indicators that are used must light standards that can be achieved by the institution under research and must contribute to the development of self-evaluation skills.
- Systematic: the evaluation process carried out here must stand by the procedures planned and developed as part of the continuous improvement program of STI management in SHT.
- Continuous: this evaluation should allow the decision making that leads to the improvement of STI management in SHT. It must pursue the proposed objective with the evaluation and remain in time.
- Flexible: the evaluation of the STI management in the school should be linked both to the evaluation standards assumed (adequate, slightly adequate and inadequate), and to the circumstances inherent to the STI management process (given the shortcomings and potentialities identified). Both are susceptible to changes or variations depending on the circumstances of each evaluative moment and the needs found in them.
- Cooperative: this evaluation involves a group of people, whose active participation during the STI management process in the institution, would improve the development of this and its results.

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The evaluators of the process are also part of the solution. The improvement plan allows us to see the evaluation as a process and result, since from the identification of insufficiencies, a new improvement plan is proposed, with the systematic and continuous execution of the cycle, constitutes the guarantee of improvement. The evaluation of this management should be directed so that each individual can manage everything that is proposed in any sphere of his life.

Representation of STI management

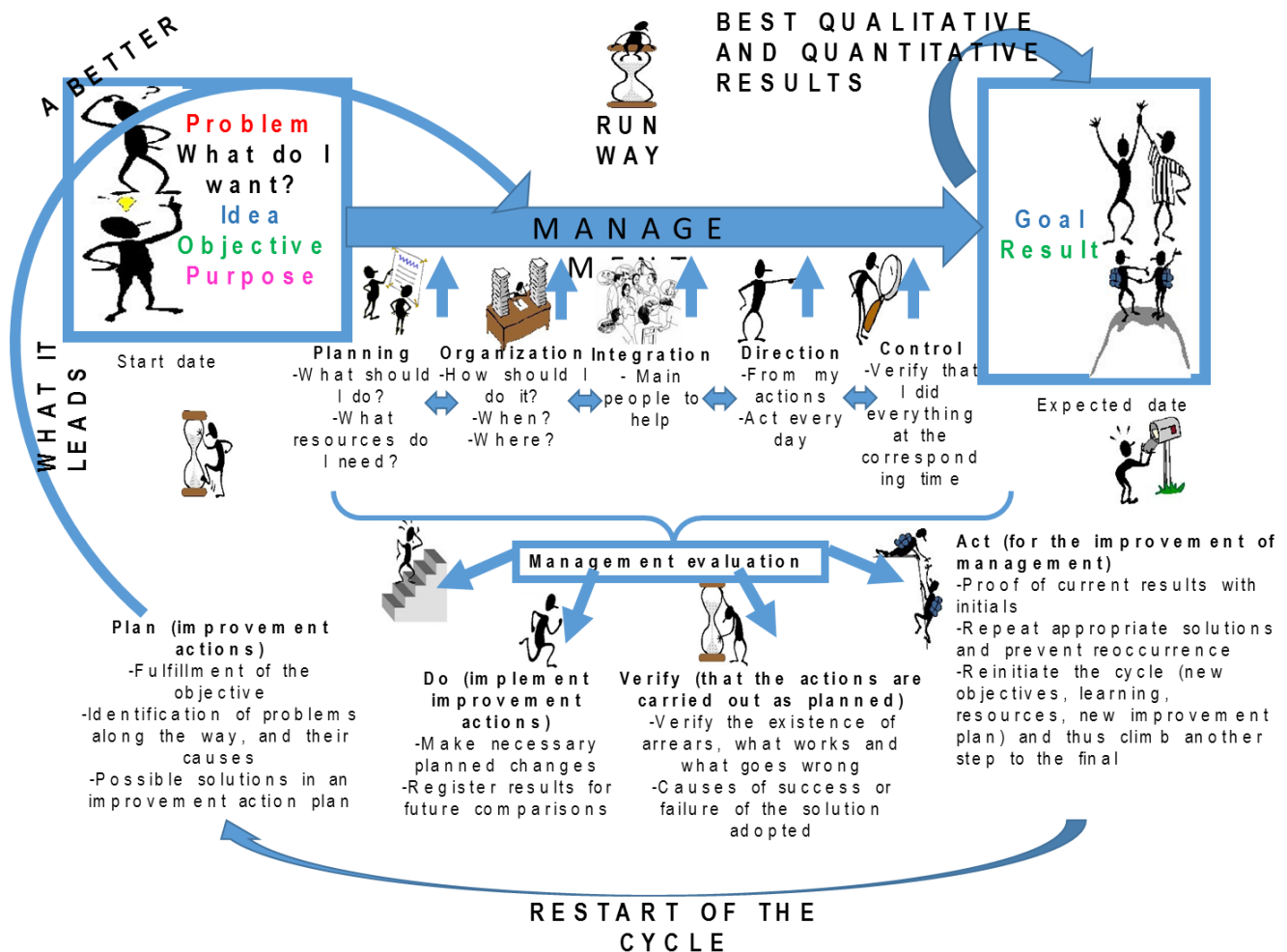


Figure 2. Evaluation of management process. Source: Own elaboration of Columbié Pileta, 2018.

CONCLUSIONS

The importance of the systematic evaluation of the processes is recognized, through the four stages of the Deming cycle, with the consequent elaboration of the improvement plan in each restart of the cycle, after identification of new insufficiencies, their causes, learning needs, reorganization of resources, among other aspects of interest.



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