

Learning Assessment Improvement Project: Marine Biology Career Assessment Process

Proyecto Mejoramiento de la Evaluación del Aprendizaje:
Proceso de evaluación en Carrera de Biología Marina

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Abstract

The evaluation is a regulatory practice of the individual and joint activity of the faculty and students in the teaching/learning process, helping decisively to shape the educational process, improve it and provide feedback. Under this context, the results of the exploratory research of the evaluation process of the faculty and student body of the Marine Biology career of the Peninsula Santa Elena State University, during the 2017-II academic period, are presented. The objective of the work consisted of identifying the perception of the student body during the process of evaluating the performance of the faculty, conducting a literature review to define the basic concepts of the evaluation, and the analysis of the diagnostic instruments developed by technical-academic staff of the MEVALAP project applied in a sample of 120 students and 20 teachers of the career. The results were grouped and categorized according to items related to the fulfillment of objectives, procedures and results of the evaluation practice, where the perceptions and expectations of teachers and students are evaluated. It was identified that the written test is the tool most used by teachers as an evaluative teaching-learning strategy, remaining as

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a traditional strategy. Based on these inferences, some reflections on the learning evaluation strategies proper to the academic dynamics of the course are presented, which will allow correcting the weaknesses of the evaluative activities applied by the teaching staff.

Keywords: evaluation, teaching-learning, students, faculty, teaching-learning, teaching staff

Resumen

La evaluación es una práctica reguladora de la actividad individual y conjunta del profesorado y alumnado en el proceso de enseñanza/aprendizaje ayudando decisivamente a configurar el proceso educativo, mejorarlo y retroalimentarlo. Bajo este contexto, se presentan los resultados de la investigación exploratoria del proceso de evaluación del profesorado y estudiantado de la carrera de Biología Marina de la Universidad Estatal Península de Santa Elena, durante el período académico 2017-II. El objetivo del trabajo consistió en identificar la percepción del estudiantado durante el proceso de evaluación del desempeño del profesorado, realizándose una revisión bibliográfica para definir los conceptos básicos de la evaluación, y el análisis los instrumentos de diagnóstico elaborados por personal técnico - académico del proyecto MEVALAP aplicados en una muestra de 120 estudiantes y 20 docentes de la carrera. Los resultados fueron agrupados y categorizados de acuerdo a ítems relacionados al cumplimiento de objetivos, procedimientos y resultados de la práctica evaluativa, donde se valoran las percepciones y expectativas de docentes y los educandos. Se identificó que la prueba escrita es la herramienta más utilizada por el profesorado como estrategia de enseñanza aprendizaje evaluativa, permaneciendo como estrategia tradicional. En base a estas inferencias, se exponen algunas reflexiones sobre las estrategias de evaluación del aprendizaje propias de las dinámicas académicas de la Carrera, lo que permitirá corregir las debilidades de las actividades evaluativas aplicadas por el profesorado.

Palabras clave: evaluación, enseñanza-aprendizaje, estudiantado, profesorado

Introduction

During the last few years, the topic of evaluation has reached an evident prominence in higher education to the point of becoming one of the central aspects of pedagogical reflections and debates. According to the stipulations of the Council for Quality Assurance in Higher Education of Ecuador -CACES- quality evaluation is the process that determines the conditions of an institution, career or academic program, through the systematic collection of quantitative

and qualitative data that allow a judgment or diagnosis, analyzing its components, functions, processes, so that its results can be used to reform and improve the curriculum, career or institution. In this context, the quality levels of higher education institutions that have a direct impact on student training become important. According to López (2010), assessment has several purposes, for example, it is used to determine university quality assurance, to describe individuals, to support learning, to monitor the learning process, to know what students are learning, to diagnose their strengths and limitations, and to promote learning (p. 112). The initiatives of university faculty to adopt alternative assessment systems, in line with the current demands of higher education, have been embodied in multiple contributions and experiences carried out from different areas of university teaching Gil (2012). The purpose of this article is to share with the community of the Faculty of Marine Sciences, the results of the exploratory research of the evaluation process carried out on teachers and students during the 2017-II academic period in the Marine Biology career.

The term evaluation constitutes an essentially critical factor in the quality of university teaching (Escudero cited in Olmos and Rodríguez 2010), whose main purpose is the development of productive learning by the student Carless, (2007). From a constructivist perspective, Nortes and Nortes (2012) state that evaluation is a regulatory practice of the individual and joint activity of teachers and students in the teaching/learning process (p 292).

For his part, Gibbs (as cited in Salinas-Fernández and Cotillas-Alandí, 2007) argues that "assessment is the most powerful weapon that teachers have to influence the way students respond to courses and behave as learners" p 13, being the main complement to teaching - learning in any educational institution; if within the planning of it something is done wrong, the rest of its components fall apart (Biggs, 2005 in Olmos and Rodríguez, 2010). Therefore, evaluation is not a sporadic or circumstantial activity of institutions and even more so of teachers, but a task that is carried out habitually and in which a significant amount of time and effort is invested Moreno (2009). This evaluation can provide students with essential feedback and inform teachers about the quality of their teaching, identifying the concepts that students have mastered and those that they have yet to learn. Considering all these concepts and from a general perspective, the term evaluate means to estimate, appreciate, calculate the value

of something; which leads us to determine it as the elaboration of a judgment on the value or merit of the teaching-learning process, in this case, by teachers in the Faculty of Marine Sciences.

At the Peninsula Santa Elena State University, UPSE, evaluation is part of the curriculum developed by each of the eight faculties, therefore, it is of a purely professional and institutional accreditation nature. As a higher education center, UPSE must guarantee that its students achieve their professional training and are competitive in society, inserting themselves in the labor market in the public and private sectors. One of the main characteristics of the formative process is the continuous evaluation of each student and of the teaching strategies that each teacher applies during the process; because through this it is possible to identify the formative development and the quality of their effective learning. In this way, evaluation is seen as relevant for several reasons: First, in order to achieve the necessary validity of the formative design, the evaluation has to be coherent with the teaching objectives and with the competences to be developed through an adequate didactic methodology; second, we must always think about the reactive or conditioning effect of the evaluation for the student, in relation to his own learning process and third, the evaluation is the essential element as a process of self-regulation and improvement in the teaching environment (Olmos-Migueláñez and Rodríguez-Conde, 2010, p. 1). Without proper evaluation, it would be irresponsible for universities to award professional degrees because they would have no proof of the real level of knowledge and competencies of the students who complete their studies; nor would they know if the design of their training projects has been good and if, in fact, they have developed in the desired direction.

Within the aforementioned, the role played by the students and faculty in the university environment demands an incessant transformation in the didactic methodology and a continuous evaluation of the teaching-learning process, characterized by an active participation of the students in the search and development of different cognitive, procedural and attitudinal skills, thus allowing the achievement of the objectives of their professional training. It is important to emphasize that, within every process developed by the faculty of the Marine Biology career, it is expected to adopt teaching strategies and methodologies that improve the academic results of the students, developing a constant desire to learn, organize and

apply knowledge, and that the skills and attitudes acquired are increased; in addition to the different forms of learning, time and space acquired while learning, ensure academic quality and student permanence in the Faculty.

The evaluation process is an inherent part of the pedagogical activity, constituting a complex practice, because it is conditioned by numerous aspects and personal, social and institutional elements, which affects the other elements involved in the university activity such as the construction of knowledge, the teacher-student relationship, group interactions, teaching strategies practiced, teaching situations offered, discipline, expectations of students, teachers and parents and the valuation of the individual in society (Serrano de Moreno, 2002, p. 249). 249); therefore, all evaluation helps decisively to configure the educational environment where the purpose of the diagnosis is formative, identifying aspects related to the teaching and learning process in order to improve and provide feedback. If the purpose is about learning, this implies evaluating, with an investigative attitude of analysis and reflection, which not only results in grades but also guides the student to improve his academic performance and/or learning process, as well as detecting the difficulties experienced and identifying our own difficulties, as teachers, to teach and transmit what we want to teach. Among the latter, evaluating the teaching methods we use, ways of motivating students to study, encouraging the evaluation to make decisions for the continuous improvement of the student and the teacher are relevant entities in the evaluation process.

Generally, learning is a complex process that ultimately results in a transformation of behavior. For every teacher, knowledge of the different stages of learning as a process is of vital importance, as it facilitates teachers to achieve optimal learning by their students. Furthermore, Martín (2003) cited in Rodríguez and Fernández (2007) argues that students have poorly elaborated conceptions about learning, and attribute the motivation of "not complicating their lives" to their university learning situation, assuming that notes are enough to study and pass (p. 239).

Sáiz and Román (2011) agree with Calvo (1996) in affirming that a dynamizing element of the pedagogical strategies related to the new ways of teaching and learning is the role of evaluation, in this sense Hernández-Nodarse and Tomalá-Solano (2017) affirm that at the Peninsula Santa Elena State University (UPSE), the development of

a Research Project ("MEVALAP-UPSE"), aimed at improving and perfecting the evaluative practice of its teachers, is already outlined and valued (p. 452). Consequently, the research group of the MEVALAP project of the Marine Biology course has the mission to determine if there are significant differences between the ways of evaluating competencies by students and teachers.

The object of the present research aims to identify the existing difficulties during the teaching performance evaluation process in the second period 2017-2, which will allow correcting weaknesses during the evaluative practices carried out by teachers with students (it should be noted that one of the main components of the teaching - learning process in our institution is the systemic evaluation that the teacher performs during classes).

Materials and methods

Based on the student-teacher evaluation process carried out in the Marine Biology career, it is reflected that students must face more complex situations and it is the teachers' mission to diversify and reorder their instructional activities, to update their knowledge to help students learn. In addition, it should be evaluated whether this diversification and reordering truly achieve the intended objectives of our institution, such as acquiring scientific and technical competencies, values and skills. Since evaluation is one of the key tasks for the implementation of the pedagogical measures plan, in search of improving learning and increasing the teaching quality of the Faculty of Marine Sciences, for the present work an exploratory descriptive research of the evaluative process of the student body and faculty of the Marine Biology Career during the period 2017- II was conducted as follows:

- a. Application of surveys and bibliographic review, which provided qualitative and quantitative data; the questionnaire integrates items referring to twenty fundamental aspects on the development of the evaluation process in the Marine Biology Career.
- b. Analysis and interpretation of the information, it is considered that the data analyzed are represented by cognitive schemes, which seek to maintain the same logic according to the academic level of the learning subjects (Montes de Oca, 2011),

highlighting the pedagogical methodology as essential features of the strategies that presuppose the planning of short, medium and long term actions that are not static and are susceptible to change. In this sense, the expression "didactic strategy" can be used, which focuses on how the teacher teaches, how the student learns and how the latter are evaluated. For the analysis, the target population constituted by the student body and faculty of the Marine Biology Career of the Peninsula Santa Elena State University during the 2017- II academic period was established. The representative sample obtained consisted of 120 students and 20 professors from an invited sample of 27 professors and 354 students. Microsoft Excel spreadsheet was used for data analysis.

The instrument used collects and analyzes a series of data to explore, describe and predict (Casas et al, 2002), considering the following characteristics:

- a. The information is obtained through indirect observation, highlighting the criteria of each respondent, so it is possible that the information obtained does not always reflect reality.
- b. The researcher's interest is not the specific subject answering the questions, but the population to which he/she belongs in this case to the Marine Biology Career; therefore, it is necessary to use appropriate sampling techniques.
- c. It allows the collection of data on a wide variety of questions about the evaluation process in the career.
- d. To determine if there are differences between qualitative variables, the information collected was standardized with equal questions for all subjects, which allowed intergroup comparisons, considering three categories of response analysis in Likert-type scale (always = 3, sometimes = 2 and never = 1), designating the 20 questions (Annex 1).of the survey in: Objectives with questions 1, 2, 3, 4, 18 and 20; Procedures with questions 6, 7, 8, 9, 11, 12, 13 and 19 and Evaluation results with questions 5, 10, 15, 16 and 17.

Results

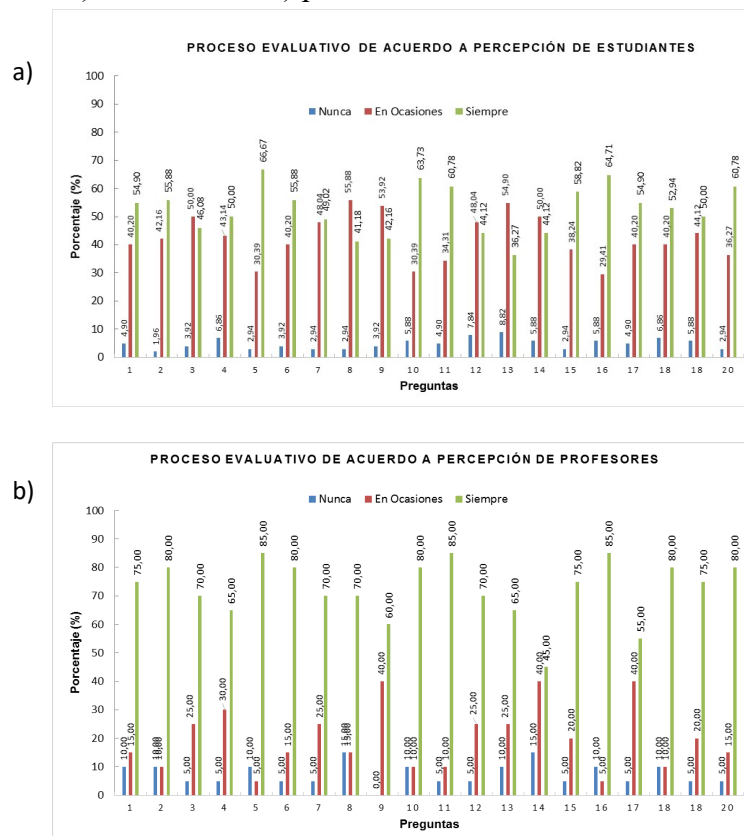
The information from the surveys allowed us to learn about the teaching-learning process applied by the teachers in the classroom

and the students' assessment of these processes inherent to the evaluation of learning.

The sample obtained reflects the participation of teachers from all specialty branches of the Marine Biology Career in relation to the different curricular organization units: basic, professional and degree described in the curriculum.

In general, in the survey applied to the students of the Marine Biology Career, it is determined that 67% responded in a valuation scale of Always in the 20 questions that were given to them; while the results reflected by the teaching staff show that most of the questions are within a range of 55 to 85% with the valuation of Always, that is, there is certain homogeneity of this criterion between the students and the teaching staff. However, it is evident the high valuation of self-evaluation by the faculty in most of the survey items. However, in the evaluation scale Occasionally, the response of students who know little about how the evaluation process is applied by the teaching staff is reflected with a greater tendency, whose percentages are between the range 30 to 55%, as opposed to the answers given by teachers, whose values are lower than this range, as shown in Figure 1 a, b.

Figure 1. Results of the evaluation process of the Marine Biology Career: a) students and b) professors.



The object to be evaluated continues to be the student's learning in the form of "academic performance", understood as that which the student is able to demonstrate as a reflection of his learning or, better, that which he is asked to demonstrate through the instruments that we put in place when he is told that he is being evaluated (Salinas-Fernández and Cotillas Alandí, 2007).

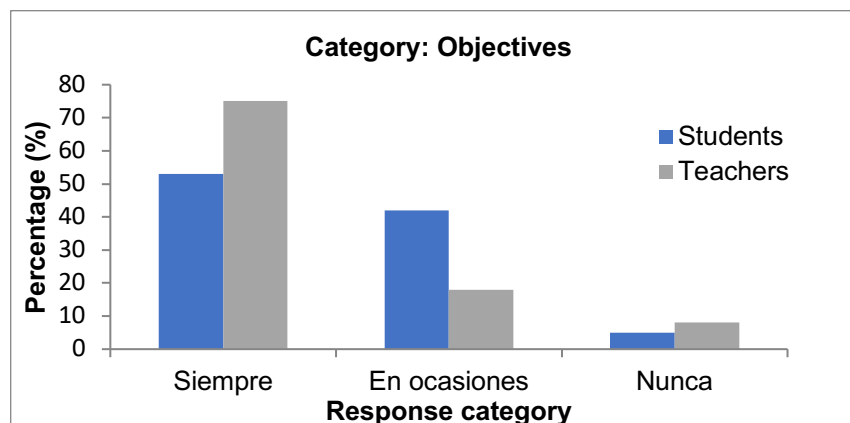
In addition, as Gil (2012) points out, it is important to know the students' perceptions about how assessment is carried out, since they explain to a large extent their (teachers') way of acting (p. 136).

The results reflect the tendency of higher values among questions 5, 10, 16 in relation to the evaluation of the contents taught and the techniques applied by the teachers that have the purpose of verifying and measuring what the students have learned; the results detail the ways of teaching, learning and evaluating the students' diary. The evaluation applied emphasizes only the general results of reproductive thematic units during the process.

Hypothetically, evaluating the learning of the students of the Marine Biology Career allows obtaining only a qualification (Moreira and Santos, 2016), without discovering the own difficulties to teach what we want to teach, achieving little motivation in the students towards the study, which is reflected in the percentages 53% in the valuation scale Always, an aspect that is opposed to the perception of the faculty in the same scale whose percentage was 75%; This evaluation means that the teaching staff complies with the objectives of the different evaluative learning strategies, which is somewhat contradictory to the perception of the students of the course. However, significant differences are also observed in the evaluative scale In Occasions with 42% for the students and 18% for the teachers, in relation to the definition of the objectives to be evaluated in the teaching-learning process, as well as the way in which the teachers transmit the information during the class.

On the other hand, from the students' point of view, what is questionable is the way in which they analyze, interpret and express the information they receive from the teachers. In this sense, it is analyzed whether or not the teachers are transmitting the pertinent information to the students (Figure 2).

Figure 2. Average survey percentage according to the Evaluation Objectives category.

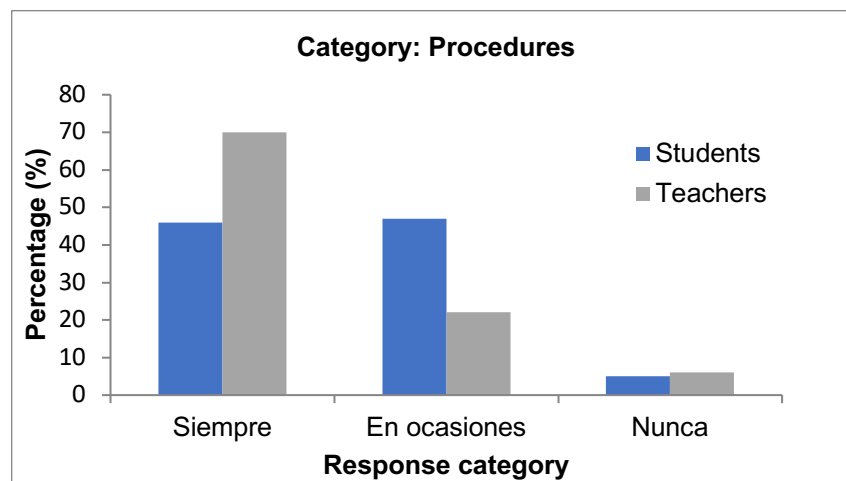


It is important to point out that the students should know how they will be evaluated, so that they can commit themselves to use these tools and reach the expected results of the course. In this case, the criteria of the faculty are different from those considered by the students, since the latter group considers that the teacher is not clear in the formulation of the methodology to be followed during the evaluation process, being contradictory to the opinion of the faculty. For this reason, the situation leads us to ask ourselves questions about what we want to develop in the student and subsequently, what kind of evidence we have that we are on the right line to transmit knowledge and that the student assimilates this information. The above denotes that the student should know that an evaluation is not to "make him fall" or "reduce the number of students" in the semester or make him see that "one knows more", but that he should "see" in that evaluation an opportunity to improve and acquire the knowledge that was imparted to him. However, the student's response leads us to the reflection of self-evaluation, if we are really transmitting this criterion to the student, if we generate an evaluation that the student does not understand or, if a high percentage of students "do not pass", it is there where we have to self-evaluate and analyze if the evaluation criteria are correct; it is important to emphasize that we do not have to consider that we are the owners of the truth. It is necessary to analyze the value that evaluation can have in the mentioned process, the way of grading work and recording achievements has been widely recognized, that is, to emphasize that

the purpose of evaluation is to improve standards, not only to measure them.

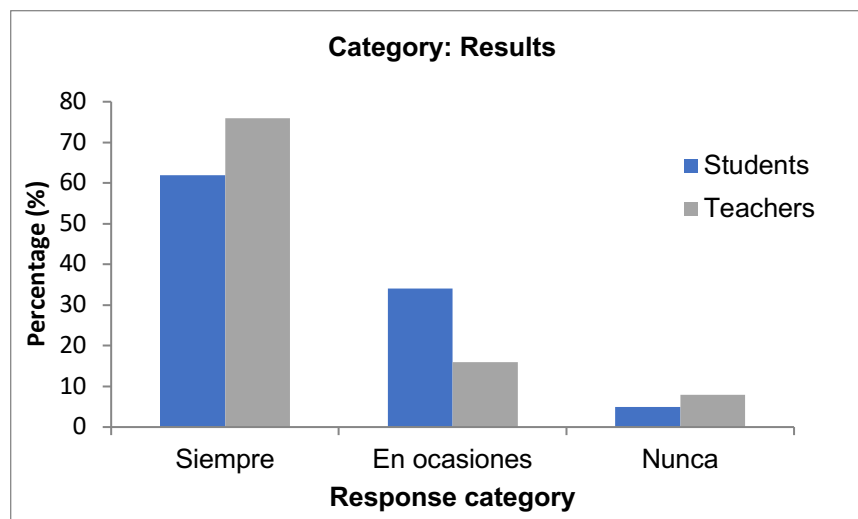
For the Procedures category, eight questions were considered whose themes reflect in a broader way the effect that the evaluable object has on the context and academic environment developed by faculty and students of the School. The result obtained during the development of the applied evaluative method allowed to increase the effectiveness of the evaluative process in this research, which is evidenced when we read percentages of 70% by the professors in the scale Always, who consider that the applied evaluations help to improve the study and to enhance the students' learning; this result is opposed to 46% of the students' perception in the same scale, they consider that only evaluative procedures are applied to certify a grade, without evaluating the procedures and the skills put into action. Furthermore, this percentage is similar in the evaluative scale In Occasions, in which they state that teachers collect information to obtain data and issue a value judgment without correcting or improving the skills acquired during the teaching-learning process, demonstrating that there is a pedagogical deficit on the part of the teachers, totally different criteria because the teaching staff assures that the active participation of the students in the different teaching strategies is encouraged, evaluating the attitudes and values demonstrated during the theoretical and practical classes, objectively measuring the possible academic performance of the students, in addition to the use of several evaluation strategies and instruments during the whole process (Figure 3). In this way, Bonetto, Paoloni and Bonolo (2017) argue that new developments on assessment are linked to a type of alternative assessment -problem solving, portfolios, dynamic assessment, broad scope tasks-, incorporated in educational systems in recent years, which allows facilitating the monitoring of the progress of students' work (p. 5).

Figure 3. Average survey percentage according to the Evaluation Procedures category.



The analysis category Results expresses what a student should know, understand and be able to do after obtaining a grade or completing a program and its components (Casas et al, 2002); In relation to this, the averages of answers to questions 5, 10, 15, 16 and 17 reflect that there is a relationship between the vision that the faculty and students have of the Faculty, whose percentages were 76 and 62% in the valuation scale Always, which means that the knowledge obtained is previously announced and projected by the teacher and then transmitted clearly and effectively in the classroom; This means that the knowledge obtained is previously announced and projected by the teacher and subsequently transmitted in a clear and effective way in the classroom, being verified in the evaluations made by the students, in addition to the fact that the knowledge and competencies developed by the teachers are linked to the learning needs of the students, which allows them to develop not only individually, but also as a team. It is important to highlight that a group of teachers indicate that at certain times the results do not reflect what was learned according to the results of the survey with 16% in the value scale On Occasions, which contrasts with the perception of the students in the same scale (Figure 4).

Figure 4. Average survey percentage according to the Evaluation Results category.



We must emphasize that the teachers transmit their knowledge to the students and this knowledge is in turn captured and assimilated, given that the results of the evaluations reflect what was received in class and that there is a clear analysis of these results at the time of the evaluations (questions 5 and 16). If we ask ourselves how to teach with what we know today to face an unknown future and even create it from the transformation of what we are and know today? (Bowden and Marton, 2011, p. 345), we can determine that as a teaching staff we have the capacity and enthusiasm to continue acquiring knowledge for transmission to students based on our life experience, adjusting to different circumstances, as well as elucidating between real knowledge and knowledge that does not have a technical, scientific and truthful basis. This situation is reflected in the analysis of the category we have classified as "Results", that is to say, a concordance between what the teacher expects to teach and what the student perceives from that teaching. For this, it is necessary that both students and teachers acquire commitments in the development of classes and in the use of teaching-learning and evaluation strategies. In this sense, in order to achieve an active participation of students, it is necessary to take into consideration pedagogical principles oriented to the development of thinking in the actors involved, the implementation of research methodology in the search for sources of information, promoting

interest in reading and participation in class, exposing different points of view that contribute to the ability to make decisions in situations of uncertainty.

The vast majority of teachers consider that there is a balance between the complexity of what is taught and the level of demand of the evaluations (Acebedo, Aznar and Hinojo, 2017), according to the averages obtained, 74% of the teachers have the will and didactic capacity to evaluate the teaching-learning process, although the evaluation process can be affected by learning problems or conceptual gaps on the part of the students, which are not detected in time (Escobedo and Arteaga, 2015). In fact, this result has a certain relationship with the perception of the students (54%), they consider that the evaluation is a direct manifestation of the influence that teachers have (Zapata, 2012), since it can be a refined way of punishing or, in turn, democracy, respectful, transparent and formative dialogue is put to the test, generating a climate of trust with the teacher. We must emphasize that the evaluative action is focused or aimed at the continuous improvement of student learning. In any case, the authors Hernández-Nodarse, Gregori-Casamayor and Tomalá-Solano (2018) argue that:

[...]it is necessary to develop an inquiring, comprehensive, dialogical, systematic evaluation based on ethical principles, which makes it necessary to use a variety of methods, techniques and instruments to assess what students learn and how they learn, their needs, progress and achievements in the different learning contents (conceptual, procedural and attitudinal), which allows for readjusting teaching methodologies (p. 2).

Discussion

The evaluation method applied by the professors of the faculty integrates theory and practice through the learning results and competencies acquired in the subjects, considering that traditional expository classes are used; cooperative learning or learning based on problems, which facilitate the possible alternative of placing the student in the center of the teaching-learning process, facilitating significant learning and offering satisfactory results. The questions that allude to the procedures applied by the teachers are located in positions Always, Occasionally and Never with intermediate and low percentages, which evidences a pedagogical deficit on the part

of the teachers; these at times are not totally comprehensible, clear and explanatory in their classes because they do not know some pedagogical tools necessary to teach the contents of the subject and transmit them to the students. We must consider that the evaluation is part of a continuous process, it should only be segregable from a methodological perspective, its quantification can be expressed in grades, in concepts, in scales of scores, percentages or another measurement scale that demonstrates the hierarchy of the results obtained during the teaching-learning process developed at the School.

The present work evaluated the quality of the teaching given based on the perception of students and teachers of the Marine Biology career, through the application of instruments, presenting a measure of excellent internal reliability during the process, the relationship of the evaluation with factors associated with the student body and faculty was also analyzed. If we place ourselves in the area of knowledge, the evaluation of teachers in most cases performed written evaluations, which implies that during the development of teaching practice they only design traditional strategies such as lectures.

There are shortcomings or difficulties that in general are regularly observed, which are associated with the methodological-didactic aspects of selection and drafting of learning outcomes; application of teaching methods that are scarcely productive and problémicos, and insufficient systemic evaluation during the planning of classes by teachers.

There is a perception among students that the faculty transmits knowledge, developing not only a desirable culture but also a professional status that will allow them to incorporate into society in an effective way by receiving a discipline/subject/knowledge of quality.

It is necessary that the professors incorporate a variety of didactic methodologies that compile cognitive, procedural and attitudinal skills of the students to improve the learning process, promoting changes and transformations in the evaluative practices in the university educational context.

Finally, it is recommended to incorporate the faculty in trainings related to the use of assessment strategies, because as mentioned by Barraza and Gonzalez (2016) the relationship between the different intelligences and the academic performance of students responds to

class designs and assessment methods that consider the perception of student ability as an important input for planning classroom work.

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