Application of Formative Assessment Instruments to Improve Teaching-Learning Process

Juana Maricela Quintana Loor
Pontificia Universidad Católica del Ecuador, sede Manabí, Portoviejo, Ecuador
Corresponding author email: jquintana4201@pucem.edu.ec

Jessica Lourdes Arteaga Mera
Pontificia Universidad Católica del Ecuador, sede Manabí, Portoviejo, Ecuador
Email: jarteaga1903@pucem.edu.ec

Josefa Katiuska Toala Palma
Pontificia Universidad Católica del Ecuador, sede Manabí, Portoviejo, Ecuador
Email: jtoala4192@pucem.edu.ec

María Rosario Cedeño Escobar
Pontificia Universidad Católica del Ecuador, sede Manabí, Portoviejo, Ecuador
Email: Mcedeno9515@pucem.edu.ec

Erika Elizabeth Ponce Aguilar
Pontificia Universidad Católica del Ecuador, sede Manabí, Portoviejo, Ecuador
Email: eponce9472@pucem.edu.ec

Abstract---*The objective of the research is to know how innovative instruments are applied in formative evaluation, to improve the teaching-learning process. To achieve this, the analytical-synthetic method of the non-experimental type was used, applying the survey technique; in addition to the bibliographic review, where the criteria of several authors are exposed. Obtaining, as a result, the types of instruments that teachers use in the evaluation process and at what time they apply it. It was obtained that the teachers maintain the active use of traditional instruments that allow the qualification easily, but a weak use of instruments that enhance the formative evaluation, as well as the lack of resources and knowledge about digital interactive tools, that allow innovation and interaction accordingly to the global culture in which today's society develops.*
Keywords---*evaluation instruments, feedback, formative evaluation, innovative evaluation, teaching-learning.*

Introduction

The use of assessments to measure the level of learning has risen to different levels, at the international level, positive results are expected to improve the Quality of these exercises. According to Martínez (2012), the formative evaluation in the United States and the United Kingdom, the Council of State Educational Officers defines the formative evaluation as a process used by the teacher and the student during the development of teaching and learning to improve compliance with the objectives set in all areas of knowledge. The Latin American Educational System in recent decades have privileged efforts to improve the quality of education by identifying variables, methodologies, techniques and assessment instruments, they are aimed at improving the processes that strengthen the academic training of students towards assessment Appropriateof learning. It is necessary to consider the

implementation of an evaluative culture in the educational process with good and new training objectives in students' talents and multiple intelligences (Vizuela, 2007; Triantafillou *et al.,* 2003; Contento *et al.,* 2007; Evans *et al.,* 1989).

It is essential to improve the application of training evaluation techniques and instruments at present, the teaching processes are affected by various difficulties that arise, by the way, traditional education processes are maintained. The speakers in their educational work make decisions to solve problems, investigate and use skills, face pedagogical processes that are usually inadequate (García & Martínez, 2005). The formative evaluation process needs the attention of researchers and teachers, so there is the problem of weak management of the evaluation instruments. This was taken for analysis and description because with the little use of the right tools, the teaching-learning process is not enhanced and time may be being spent on the knowledge that is not being significantly assimilated by students.

Formative evaluation in Ecuador at all levels has been subject in part to traditional pedagogical models, even though there is an evaluation instruction in which the Ecuadorian teacher has the guidelines on the subject. Not in all institutions the procedural evaluation is applied in the correct way to meet its objectives. According to Saltos & Chiriboga (2016), formative evaluation is a complex activity, but at the same time gratifying, since there are pedagogues who adjust methodologies, techniques, strategies, and changes in attitudes after an evaluation process, however, in their research work it shows that many times the work In the classroom for the development of skills and abilities it is constrained by the lack of didactic and / or technological implements.

In the regulation of LOEI in art. 196 indicates that the average for a student to pass to the upper grade is 7/10, due to this the Zonal Coordination 4 corresponding to the province of Manabí and Santo Domingo de Los Tsáchilas, conducts seminars to all the managers of the institutions to address how each part and quarter of the different subjects are recorded. The three types of evaluation are: diagnostic, formative, and summative in the teaching-learning process (PEA); The diagnosis is made at the beginning of class to measure the degree of knowledge of the students (Macías *et al.,* 2018; Alcivar *et al.,* 2020; Chamoso *et al.,* 2012). As for the formative evaluation, which is given procedurally through works: individual, group, activities in classes and lessons, this evaluation allows the teacher to make adjustments in their work methodology, in addition to the feedback to students for the achievement of the objectives that are proposed, but at what level the formative evaluation is applied in the educational establishments of Manabí and Santo Domingo de Los Tsáchicas so that the EAP is significant, if it does not have the importance that deserves by teachers (Behrouzi & Wong, 2011).

It is essential to create dynamics of organization of knowledge and knowledge, providing learning environments where social and epistemological spaces are developed towards the interpretation and resolution of problems within the framework of citizen and intercultural training. Exposing this problem allows teachers a basis for a paradigm shift about the use of assessment instruments and extends the vision towards improved teaching for the benefit of students. Understanding the importance of these tools will reduce the path to achieve the proposed goals at the beginning of the class programs, learning becomes specific and allows constructing valid criteria for the social, personal, and institutional contexts of the members of the educational community, of the Hand for proper feedback.

2 Materials and Methods

The present investigation was oriented from a mixed quantitative-qualitative approach, the analytical-synthetic method of the non-experimental type was used, in addition to the writing of this document the bibliographic research was used. Under these aspects, the survey technique was applied. The electronic questionnaire, as a research tool, was addressed to the teachers of the School of Basic General Education "San Jacinto" of the Andrés de Vera parish, of the Portoviejo canton, to know the educational reality regarding the evaluation instruments that teachers use, to improve the teaching-learning process (Kraker, 2000; Rao *et al.,* 2011).

3 Results and Discussions

3.1 Formative evaluation

The evaluation has existed since the beginning of what we call the educational system, it has traditionally been directed to measure the student's knowledge following quality criteria, this can be addressed according to different contexts and different needs, but its purpose remains the measurement. Anijovich (2017), adheres to the definition of William, who points out that practice in a class is formative to the extent that evidence about student achievement is obtained, interpreted and used by teachers, trainees or their peers to make decisions about their next steps in

instruction that are likely to be better or better founded, than the decisions they would have made in the absence of the evidence that was obtained.

It is observed as the main objective, to improve, the formative evaluation of the learning offers the possibilities of identifying the necessary aspects to know the development of the teaching-learning process, the instruction that the teacher carries can also be analyzed thanks to the results of the formative evaluations because it allows changes to be made throughout the cycles and not only at the end where quantitative results are shown without or little option to improve. For Cardoner (2016) in the formative evaluation, there is a transition from the content-based evaluation to a subject-centered evaluation where this subject must be aware that it is the object of an arduous construction that never stops. In other words, the attention of this evaluation encourages the student to be active, critical, and reflective, work on himself and facilitate the vision of the real world to which he is exposed daily in different situations.

The type of formative evaluation seeks to change the perspective of that assessment so that the importance of student learning is understood not only to reach a level of quality in the contents that have been treated but also to understand and put into practice the socialized information with meaning in your daily life. It is defined as the collection, evaluation, and use of the information that the teacher obtains during their classes and how all these aspects can help improve the teaching process, and to this is added the feedback that occurs between educators and learners, which is aimed at improving actions on performance and encouraging individual learning according to the needs of each student (López, 2010). In recent years the concept of formative evaluation has been extended to the evaluation of learning, here it is seen as a continuous, daily and dynamic process, taking as a starting point the student and group progress, and not only the established criteria, takes the person as the main actor of the evaluation, to strengthen their learning and also improve in the aspects that have a weakness, in this way the teacher of the hand of techniques and instruments to achieve the objectives set for your class.

3.2 Role of the Formative Evaluation

From a broad perspective, the application of the formative function of the evaluation has repercussions on social, personal and institutional life, fulfills a collaborative function between teachers and students, you are associated with the relationship in the evaluating subject and the subject evaluated that an integrating effect arises that not only benefits the two parties mentioned above, but also the people who live in the different contexts of the participants. Following this idea according to Allal's research cited by (De Jesús, 2016) about the modalities of regulation of the application of formative evaluation strategies, it emphasizes three regulations:

1) Interactive regulation: This is when the student interacts with other elements in the teaching activity such as with knowledge, other study partners, and material. Space emerges where instructional activities interact, that is, students can strengthen their particular learning through step-by-step guided feedback.
2) Retroactive regulation: It is evident when the evaluation is carried out after a stage in teaching, it serves to identify the proposed objectives and identify the factors that were achieved and those that were not. Here you can look for alternative means to those that were initially executed to overcome difficulties in certain students.
3) Proactive regulation: This occurs when information is taken from various sources that cause an improvement in innovative instructional activities. It is designed to focus on the differences observed in students. It does not concentrate on remedying teaching difficulties, but rather enriches it to consolidate this process so that the student can overcome it according to his needs.
   In summary, Chiang & Díaz (2011) present the functions of formative evaluation such as: Diagnose weaknesses, provide feedback, generate autonomous motivation, and promote dialogue between teacher and student.

3.3 Evaluation

Techniques and instruments techniques and instruments go hand in hand because they are the strategies that the evaluator uses to systematically collect information from the group to be evaluated, according to Rodríguez and Ibarra, cited by (Hamodi *et al.,* 2015) the tools they can be observation, interviews and documentary analysis; on the other hand, the instruments are real and tangible materials with which the evaluation is carried out and allow for several aspects of valuation. For Lescano & Villanova (2017), one of the characteristics of the instruments is the reliability that reflects the learning built, they function as allies of the evaluation process by recording the results that are occurring in the course of the classes, and if the slogans established are being fulfilled or new difficulties are emerging. The continuous use of the assessment instruments also helps to identify if the methodology applied is assimilated by the students, if it gives beneficial results in their learning.

"The evaluation instruments are the tools that both teachers and students use to organize in an organized way the information collected through a specific evaluation technique" (Hamodi *et al.,* 2015). The techniques serve to collect information from the medium that is intended to be evaluated but to be a detailed process, it must be registered in documents that synthesize and do the most rigorous, orderly, and systematic work. The instruments are an important part of the process of formative evaluation, the teacher needs the guide that allows him to know-how is the type of student to be related (in the case of being new), how they respond in the teaching process and what results after providing the prepared information exist within the class. In the compilation of Hamodi *et al.* (2015), from Castejón *et al.* 2015; and Rodríguez & Ibarra, 2011. A list of several formative evaluation instruments is shown, such as:

Teacher's journal, test scale, semantic differential scale, verbal or numerical scale, descriptive or rubric scale, estimation scale, datasheet observation, checklist, decision matrices, individual or group monitoring tokens, self-assessment tokens, peer evaluation tokens, expert report and self-assessment report. It should be noted that, although all the mentioned instruments are functional, the teacher applies them according to many circumstances such as the level, the types of the technique used, how he will perform it, and the content he imparts. "Sometimes there may be some difficulty in differentiating the means of the evaluation instruments (even sometimes they can be both), but for there to be no confusion, the purpose pursued must be taken into account (Hamodi *et al.,* 2015).

Below are some of the best-known instruments in the field of formative evaluation:

Heading, it is one of the most used and most recognized instruments, it includes an evaluation record that contains several dimensions following a level of quality and performance.

In a broad sense, it is identified with any evaluation pattern, preferably closed (check-list type or scale). Strictly speaking, it is assimilated to a valuation matrix that incorporates on one axis the criteria for the execution of a task and on the other axis a scale and whose inner boxes are full of text. In each box of the rubric, it is described what type of execution would be worthy of that degree of the scale (Cano, 2015).

List or pattern of checks, "It is an evaluation instrument that contains a list of elements, criteria or evaluation performances, previously established, along with a couple of columns in which only the presence or absence of these is marked by a dichotomous scale" (Drago, 2017).

For example, in a list of this type you can place the objectives of the activity and in the place of the continuous column "achieved" or "not achieved". Precisely because it is a dichotomous scale it would not be useful for summative evaluation, but on the other hand, it does allow us to have a vision of the progress of the achievements of the evaluated group.

Measuring or appreciation scales., "It consists of a list of criteria, indicators, characteristics or traits accompanied by one or several scales with which the degree or extent to which said characteristic is presented in a subject or a work can be established" (Drago, 2017). Here the evaluating teacher must, at his discretion, estimate the intensity in which the person meets that trait. Several measurement units can be evidenced in figure 1.

UNIT OF MEASUREMENT
Frequency
Intensity
Quality

DEFINITION OF PERFORMANCE
Regularity with which it is presented
Strength
Effectiveness

DESCRIPTIVES
Always, almost always, occasionally and never
Strong, very strong, moderate and regular.
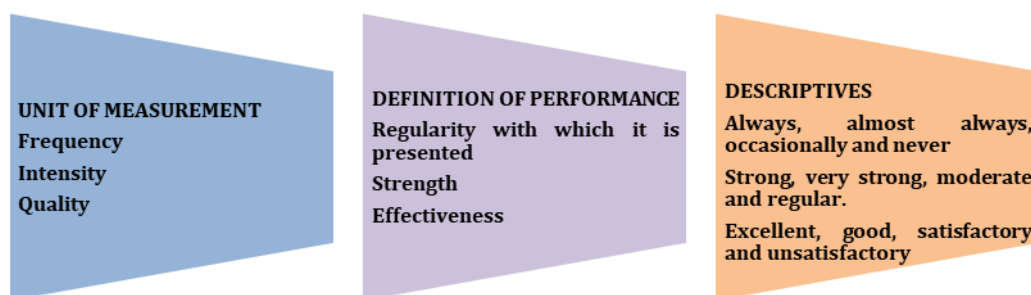Excellent, good, satisfactory and unsatisfactory

Figure 1. Assessment scales: measurement units
Source: Own elaboration, contents taken from Drago (2017) From Gómez, Salas *et al.* (2013)

The teacher in this regard will choose the best description of their measurement scales, following the criteria they are evaluating at that time. The type of instrument serves to evaluate a wide range of cognitive, procedural, and attitudinal performances, also supports feedback and evaluation of laboratory and practice processes, as well as oral presentations, but they do not serve in cases of evaluation of very specific knowledge or with extensive information. The type of instrument and technique chose is important for the student, because of the interest and dedication he dedicates to the evaluation; According to the research of Zúñiga & Cárdenas (2014), the students presented reflections on the tools that teachers used for the evaluation during their school stage, and it was concluded that the

most valued by them are those of qualitative type since these allow them to express themselves broadly and can also learn not only specific but also help them develop oral, written, etc. skills. Those of the object types are classified as limited by the students.

3.4 Feedback

Feedback is the most basic way to reinforce the information given above and not understood, it can be defined as a system in which there is information regarding the distance from point A to point B, the communication sent and in the process, it returns to the starting point. "In educational terms, we can define it as that information that is used to reduce the difference between the learning results obtained by the student and the expected learning results" (García, 2015).

As a fundamental piece of the formative evaluation, the feedback is very enriching in the teaching-learning process, both teachers and students perform a critical analysis of the content taught in class if it is constructed from the teacher's guidance and experience together with that of the other participants, the difficulty gap is reduced. In the guidelines set forth by (Anijovich, 2017), several aspects that often go unnoticed are identified, such as knowing how to choose the right climate, place, and occasion for feedback. Not in all cases, it can be made evident, the teacher must analyze well the context where the class is developed to act according to reality and environment.

3.5 Innovative evaluation

Students today have grown in globalization and because of a culture that is growing in computer science, so their reality is perceived differently from that of previous generations. Therefore, teachers need new and innovative strategies to include the participation of students with techniques according to new trends in the digital and social fields.

3.5.1 One is the Tics in the Evaluation process

The advances at the technological level continue without pause and much more in recent times, education has adapted from support to the physical aspect that is, with the immersion of computers, connection websites for institutions, or allow the use of smartphones in the classroom. But the true meaning of innovation implies an evolution in the processes, in the seed way of teaching, and is often complemented by the new devices.

According to Arias & Peñaloza (2011), it refers that the new information and communication technologies (ICT) facilitates the production and distribution of good quality learning materials with multimedia support, facilitates interpersonal communications, avoids major expenses and makes viable the use of the web to distribute information and scientific content that is not found in traditional sources such as libraries, reading spaces, among others, to this we can add that some programs and pages allow the realization of interactive questionnaires that access participation of the whole group, but digitally and playfully.

3.5.2 Use of Kahoot as an innovative evaluation tool.

Kahoot is designed to create tests in which students compete with each other, but there are also other possibilities to work the debate in class or obtain information about the preferences of our students. The teacher is the one who elaborates on the tests and the student's access them using a mobile device or also using the PC, to play it is necessary for the students to previously enter a code that will be provided by the teacher (Herrero, 2018).

The mentioned tool allows to reinforce and evaluate contents, students enter at the same time from devices with internet and when the teacher decides it will start the test, in which they will have to choose the correct answer in the shortest time possible, who better does it will be the winner. It can be said that it is only a multiple-choice questionnaire but the difference is the way of applying it, the students not only have fun, but they will look for ways to be ready to know acquired to be able to climb in the ranking of the game. They have fun, reinforce their knowledge, and pleasantly exercise their neural system.

It is a platform that emulates a TV game, trivia and questions to reach several awards - In the style of "Who wants to be a millionaire", (Gallegos, 2015) comments that:

Kahoot is not only thinking as a unidirectional pedagogy, in that the teacher creates questions and the students limit themselves to answering in real-time, but the role can be changed and the students themselves develop the questions and play among themselves; curiosity, inquiry and the good habit of asking questions are strengthened.

The Kahoot platform is just an example of what the network offers today, many times the teacher may be reluctant or a little resistant to the idea of using digital tools in the teaching-learning process, considering them in a certain way a distraction when compared to the traditional model. However, it is a challenge for teaching to immerse themselves in the digital field to enhance the teaching-learning process

After applying the survey to the 25 teachers of the San Jacinto School, in the city of Portoviejo-Manabí, to inquire about the use of the formative evaluation instruments, the following results were obtained, according to it is shown in figure 2. In Figure 2, discuss the topic at what times of the school year do you apply the evaluation of your students' learning? Teachers could choose between marking one or more of the options to know if they occupied several moments of the school year to carry out the evaluation. 60% of the answers obtained belong to the criterion during the whole teaching process, while at the end of each unit 28%, with the same percentage the response of evaluating at the end of each partial and quizmaster; and only 16% opt for a prior evaluation when starting a new unit of work.
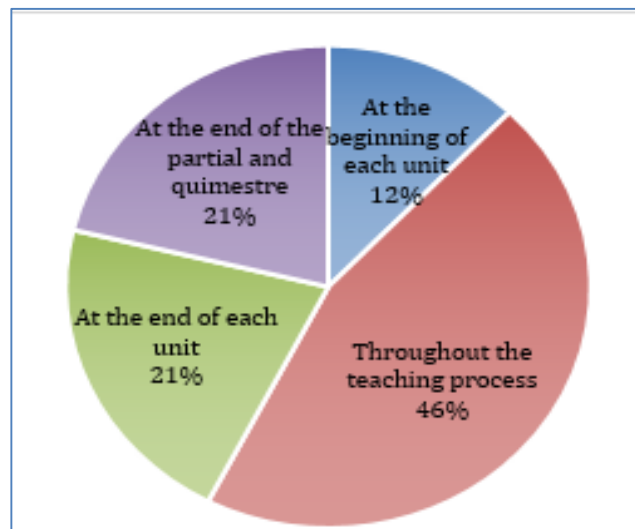

Figure 2. Time of application of the evaluation of student learning

In this way it can be observed that it is during the entire teaching-learning process that teachers carry out the evaluation, being consistent with Lezcano & Vilanova (2017), who reiterate the importance of continuous evaluation, and so the teacher allows himself to be clear about the student progress, under the use of any of the instruments. Continuous evaluation ensures that the quality of the content is strengthened according to the results. It is also important to note that of the people who evaluate at specific times, they place more emphasis on executing it at the end, after a teaching period has elapsed and only four carry out an evaluation at the beginning of the unit, that is, they are not given more relevance to diagnostic evaluations. Given this situation (Arriaga, 2015), he considers that an adequate diagnosis enhances teaching because it allows having a clear vision of the student's aptitudes concerning the topic to be treated, time would not be spent on aspects known by the student, but only reinforced and advances quickly.

Figure 3 shows how the tools of formative evaluation are used. Teachers could also choose between several of the criteria and it was observed that in 84%, the instruments with more use are the tests in the form of a questionnaire with questions either oral or written; followed by the rubrics that occupy 48% and the observation sheets 40%; in a smaller percentage the checklists with 36%, the teacher's journal 24% and the measurement scales in 20%; Finally, the reports reached a zero percentage and the other section with 4%.
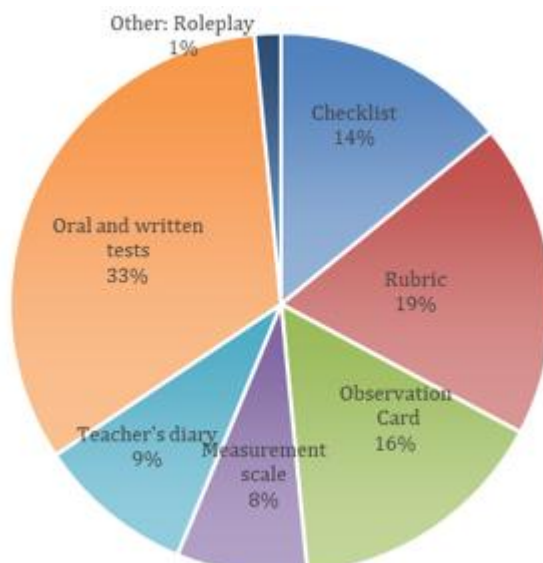
Figure 3. Evaluation instruments used in formative evaluation

The results show a considerable advantage of the tests, contradictorily authors such as (Hamodi *et al.* 2015) and (Drago, 2017), state that these types of instruments can be more effective in the Summative evaluation does not mean that tests of this type do not contribute to the evaluation that is being analyzed at the moment, but "they do not constitute in themselves novel or authentic evaluation instruments", there are other types of instruments that are more suitable. Next, the rubric and observation sheet is the most popular, but it is favorable because it has many advantages such as:

They reduce the amount of time that the teacher must devote to the evaluation, the student through self-evaluation and co-evaluation is who Identify failures and ways to improve your work. They provide rich feedback on the strengths and needs of the student. They are relatively easy to use and explain (Drago, 2017).
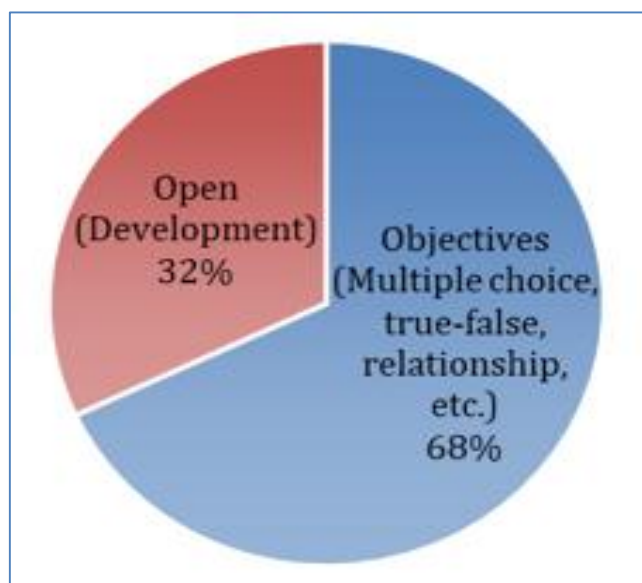

Figure 4. Prevalence of questions used in the tests

The results presented in Figure 4 show that 68% of the objective questions have a leading role in the tests taken by the teachers of the San Jacinto School and only in 32% the open or developmental questions.

Thus, the objective questions used mostly, also complying with the guidelines of the Ministry of Education of our country and moving towards testing standards at higher levels. However, they cannot be established as the best in the training field. Zúñiga & Cárdenas (2014), demonstrate in their research that they prefer development questions so

they can strengthen their skills, issue their criteria and generate new knowledge based on the breadth of the questions, also cause them less stress. About Figure 5, the following results are shown regarding the moments of feedback where 44% perform it after the Formal Evaluation; followed by the people who make the feedback during their classes in 32% and in 24% who do it at the end of the work units.
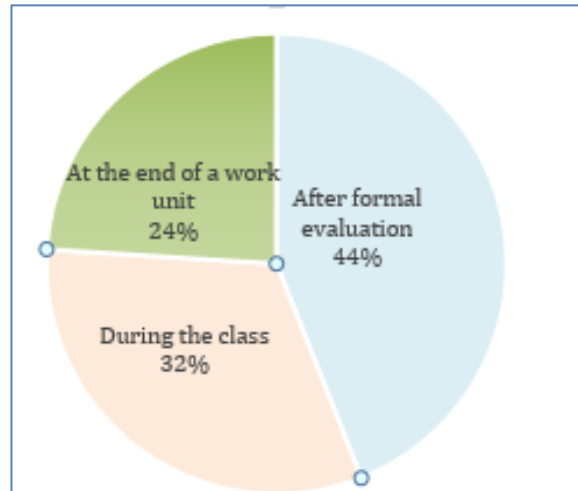

Figure 5. Moments of feedback

According to these results, something contradictory is observed with the answers to the first question summarized in Table 1. Where evaluation predominated throughout the teaching-learning process. On the other hand, the moment of feedback is indeed under the guidance of the evaluating teacher, taking into account aspects in the context of the class, however, Roman (2009), defines feedback as a valuable process that always goes forward, therefore, it is part of the continuous, permanent evaluation of educational development and also that since the information is complementary to that given in the beginning, the student will be willing to be part of the feedback to specify, clarify and finish understanding the topic that has I am still exposed or worked in class.

In figure 6, based on the question about the knowledge and use of Apps for interactive evaluations, it was obtained that in 68% teachers know how to use at least one of these programs or platforms but cannot be executed in their classes due to lack of resources; To this results is added the other majority that knows about their existence but does not handle how it works; and finally, only in 4% the teacher does manage and use at least one of these programs in the learning evaluation process.
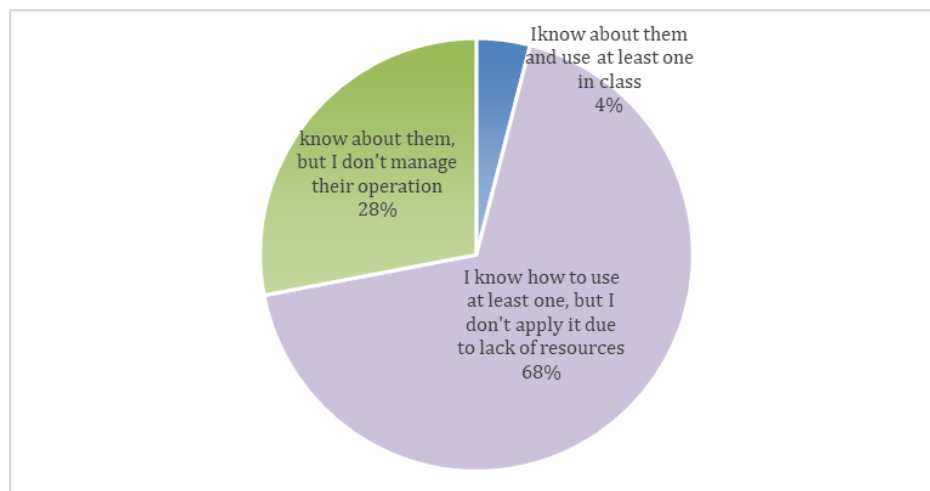

Figure 6. Knowledge and use of Apps or Software for an innovative and interactive evaluation

As the majority response exposes one of the problems of some educational institutions, access to the internet and devices for educational use is reduced, and therefore certain applications that help to relate the world of information technology and education cannot be applied to Communication with education. Likewise, the percentage that does not know how it works is relevant because it shows a lack of local teachers about the digital medium. The lack of digital resources and little knowledge about educational platforms, software, or applications, subtract the possibility of creating new forms of interactive evaluation with schoolchildren. The world today, increasingly digital, grows exponentially in entertainment, but it does not happen the same within the crazy education system

4 Conclusion

The teachers of the School of Basic General Education, mostly maintain the use of traditional instruments such as questioning tests for the formative evaluation of students and the sporadic use of more consistent tools such as files, rubrics, or measurement scales. In the same way, educators carry out a continuous evaluation throughout the teaching-learning process, which allows students to monitor progress and improvements. But on the other hand, the feedback process is evidenced after the formal evaluations, that is, it is preferred to carry out the feedback process at specific times during the school year. The lack of digital resources and little knowledge about educational platforms, software, or applications, subtract the possibility of creating new forms of interactive evaluation with schoolchildren. The world today, increasingly digital, grows exponentially in entertainment, but it does not happen the same within the crazy education system

References

Alcivar, C. M. M., Quimi, T. L. I., & Barberan, M. F. Z. (2020). The motivation and its importance in the teaching-learning process. *International Research Journal of Management, IT and Social Sciences*, *7*(1), 138-144. https://doi.org/10.21744/irjmis.v7n1.832

Anijovich, R. (2017). La evaluación formativa en la enseñanza superior. Voces de la educación, *2*(1), 31-38.

Arias, S., & Peñaloza, M. (2011). Evaluar los aprendizajes bajo un enfoque innovador. Educere, *15*(51), 357-368.

Arriaga, M. (2015). El diagnóstico educativo, una importante herramienta para elevar la calidad de la educación en manos de los docentes. Atenas, *3*(31), 63-74.

Behrouzi, F., & Wong, K. Y. (2011). Lean performance evaluation of manufacturing systems: A dynamic and innovative approach. *Procedia Computer Science*, *3*, 388-395. https://doi.org/10.1016/j.procs.2010.12.065

Cano, E. (2015). Las rúbricas como instrumento de evaluación de competencias en educación superior: ¿Uso o abuso? Profesorado. Revista de currículum y formación de profesorado, *19*(2), 265-280.

Cardoner, C. (2016). Una Noción de Evaluación: La Evaluación Formativa en el Marco de las Concepciones de Finlandia y la Ciudad de Buenos Aires. Revista Iberoamericana de Evaluación Educativa, *9*(1), 75-90.

Castejón, FJ, Santos Pastor, ML, & Palacios Picos, A. (2015). Questionnaire on methodology and evaluation in initial training in physical education. *International journal of Medicine and Sciences of Physical Activity of Sport*. 10.15366/rimcafd2015.58.004

Chamoso, J. M., Cáceres, M. J., & Azcárate, P. (2012). Reflection on the teaching-learning process in the initial training of teachers. Characterization of the issues on which pre-service mathematics teachers reflect. *Teaching and Teacher Education*, *28*(2), 154-164. https://doi.org/10.1016/j.tate.2011.08.003

Chiang, M., & Díaz, C. (2011). Generalidades de evaluación y elaboración de preguntas de opción múltiple. Universidad de Concepción, Concepción.

Contento, I. R., Koch, P. A., Lee, H., Sauberli, W., & Calabrese-Barton, A. (2007). Enhancing personal agency and competence in eating and moving: Formative evaluation of a middle school curriculum—Choice, control, and change. *Journal of nutrition education and behavior*, *39*(5), S179-S186. https://doi.org/10.1016/j.jneb.2007.02.006

De Jesús, J. (2016). La función formativa de la evaluación en un curriculum integral. Universidad Complutense de Madrid, Madrid.

Drago, C. (2017). Manual de apoyo docente. Evaluación para el aprendizaje. Universidad Central de Chile:, Santiago.

Evans, R. I., Raines, B. E., & Owen, A. E. (1989). Formative evaluation in school-based health promotion investigations. *Preventive Medicine*, *18*(2), 229-234. https://doi.org/10.1016/0091-7435(89)90070-4

Gallegos. (2015). Kahoot, la mejor manera de aprender es jugando. Revista para el Aula IDEA.

García, A.M.D. (2005). Estrategias pedagógicas para la enseñanza de las ciencias naturales.

García, E. (2015). La evaluación del aprendizaje: de la retroalimentación a la autorregulación. El papel de las tecnologías. Relieve, 1-24.

Gómez, G., Salas, N., Valerio, C., Durán, Y., Gamboa, Y., Jiménez, L., ... & Umaña, C. (2013). Technical-pedagogical considerations in the construction of checklists, rating scales and assessment matrices for the evaluation of learning at the State Distance University. *Retrieved on*, *7*.

Hamodi, C., López Pastor, VM, & López Pastor, AT (2015). Means, techniques and instruments of formative and shared evaluation of learning in higher education. *Educational Profiles* , *37* (147), 146-161.

Herrero, R. (2018). Manual de Kahoot para docentes. Murcia. Obtenido de https://erasmusmedina.files.wordpress.com/2018/02/manual-de-kahoot-para-docentes.pdf

Kraker, M. J. (2000). Classroom discourse: Teaching, learning, and learning disabilities. *Teaching and Teacher Education*, *16*(3), 295-313. https://doi.org/10.1016/S0742-051X(99)00063-3

Lescano, L., & Villanova, G. (2017). Instrumentos de evaluación de aprendizaje en entornos virtuales. Informe Científico Técnico UNPA, 9(1), 1-36. Obtenido de https://dialnet.unirioja.es/servlet/articulo?codigo=5919087

López, A. (2010). La evaluación formativa en la enseñanza y aprendizaje del inglés. Voces y Silencios: Revista Latinoamericana de Educación, 1(2), 111-124. Obtenido de https://dialnet.unirioja.es/descarga/articulo/4058528.pdf

Macías, E. I. P., Cedeño, H. A. C., & Chávez, G. M. R. (2018). Importance of Improving Resilience in Teaching-Learning Process of Students with Disabilities. *International Research Journal of Management, IT and Social Sciences*, *5*(2), 120-128.

Martínez, F. (2012). La evaluación formativa del aprendizaje en el aula en la bibliografía en inglés y francés: Revisión de literatura. Revista mexicana de investigación educativa, 17(54), 849-875. Recuperado de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-66662012000300008&lng=es&tlng=es.

Rao, R. V., Savsani, V. J., & Vakharia, D. P. (2011). Teaching–learning-based optimization: a novel method for constrained mechanical design optimization problems. *Computer-Aided Design*, *43*(3), 303-315. https://doi.org/10.1016/j.cad.2010.12.015

Rodríguez, G., & Ibarra, MS (2011). e-Assessment oriented to strategic e-learning in higher education. *Madrid: Narcea*, *35*.

Roman, C. (2009). Sobre la retroalimentación o el feedback en la educación superior on line. Revista Virtual Universidad Católica del Norte (26), 1-18. Obtenido de https://www.redalyc.org/pdf/1942/194215516009.pdf

Saltos, C., y Chiriboga, M. (2016). La evaluación formativa en el desempeño de los estudiantes. Dominio de las Ciencias, 2(4), 112-127. doi: http://dx.doi.org/10.23857/dc.v2i4.88

Triantafillou, E., Pomportsis, A., & Demetriadis, S. (2003). The design and the formative evaluation of an adaptive educational system based on cognitive styles. *Computers & Education*, *41*(1), 87-103. https://doi.org/10.1016/S0360-1315(03)00031-9

Vizuela, J. (2007). La evaluación formativa en el proceso de formación académica del estudiante de la Facultad de Medicina de la Universidad Católica de Cuenca. Tesis de Maestría, Universidad Católica de Cuenca, Ambato.

Zúñiga, C., & Cárdenas, P. (2014). Instrumentos de Evaluación: ¿Qué Piensan los Estudiantes al Terminar la Escolaridad Obligatoria?. Perspectiva Educacional, Formación de Profesores,, 53(1), 57-72. Obtenido de https://www.redalyc.org/pdf/3333/333329700005.pdf