

Formative Evaluation From The Perspective Of The University Student In Times Of Pandemic

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Abstract

Introduction: When talking about formative evaluation, it is relevant to point out that the intervention of the didactic process focuses on the processes rather than on the qualifications. This study set out to determine the influence of formative assessment on learning by competencies in students in times of pandemic.

Method: In relation to the methodology, we worked with a non-experimental design, of a basic type, the scope was causal explanatory and quantitative approach. For data collection, two instruments were developed and applied to a sample of 80 students from a private university in Lima. It should be noted that both instruments, before being applied to the sample, went through two phases: reliability and validity, obtaining a Cronbach's alpha of 0.893 for the formative assessment instrument and 0.824 for learning by competence; therefore, they indicated high reliability.

Results: Regarding the descriptive results, an inadequate level of 38.8% was obtained on the formative evaluation and a level in process of 12.5% regarding learning by competence. For the fit of the model and Pseudo R², the contrast test of the likelihood ratio indicated that the logistic model is significant with a Chi square of 40.928 and a significance value of =.000, which determined that the formative evaluation influences significantly in learning by competence. Regarding the Nagelkerke coefficient, a value of 0.382 was obtained, which indicated that learning by competence is explained by formative evaluation. Likewise, the Wald score of 39.528 gave as an indication that the formative evaluation responds in an important way to the prediction of learning by competence.

Conclusions: It was concluded that to the extent that formative evaluation is better, then learning by competence will also be positively influenced.

Keywords: Student evaluation, Learning, Motivation, Cognition.

INTRODUCTION

Today, in the international and national educational field, it is known that education has undergone sudden changes due to the health emergency caused by Covid-19; Such changes undoubtedly affect student learning. The Peruvian Educational System (SEP), in order not to paralyze education, took urgent measures for educational continuity. If in a face-to-face education the students presented cognitive difficulties, in a remote education, these have increased; that is, some of the competencies of the courses were not studied or evaluated in some professional careers; for example, in Architecture, in Medicine, in Engineering, among others. It is important to mention that the SEP takes into account the formative evaluation, the purpose of which is for the student to develop their skills and become competent¹.

In Peruvian universities, the traditional teaching method is still perceived; that is to say, it is based on the exposition of knowledge and these are not very effective and efficient so that significant learning can be developed. If we want to train active students, learning by competencies should be considered; that is, an active education where the future professional can build their own knowledge; for this to be achieved, the student must be the center of the teaching-learning process. It is specified that, in times of pandemic, students have presented difficulties in the learning process as a result of diseases such as hypertension as a result of confinement; studies show that a large percentage of students have developed cardiovascular diseases; therefore, they must follow the recommendations of the experts, as well as put into practice good lifestyle habits, avoiding the risk of illness due to long hours in front of a computer without doing mobilization exercises².

From the perspective of teaching in universities in the different professional careers, they must be modified in such a way that university students have multiple opportunities to carry out experiments, analyze information, build models, construct

arguments and be able to communicate their ideas, then it could be said that the teaching-learning process is being worked on by competencies and that the formative evaluation is the one that allows to see the level of progress of the student ³.

The involvement of students in an active way during the learning process is important, since it has allowed the motivation of multiple activities and debates on the type of models as well as teaching strategies that teachers must take into account and implement in the classroom. . When students carry out multiple activities during the health crisis, they present obesity; Studies have shown that the Body Mass Index (BMI) acts as a positive predictive factor, so that students feel motivated and are attentive to the activities planned by teachers ⁴. Likewise, as a result of confinement in the last two years, both children and adolescents have obesity, which has a negative impact on health; therefore, from education, prevention and control of this disease must be worked on ⁵. It is necessary to mention that, in many professional careers, the student has to explore and build his own learning autonomously, but, in practice, this is not the case, because there are teachers who continue to apply traditional education. The use of teaching strategy in the university curriculum is based on an education by competence, but when the teacher performs the evaluation, he does so objectively, but not formatively. In other words, for the student to be autonomous, the teacher must use teaching strategies that allow collaborative work, project teaching; but the most important thing that can predict, observe and explain, if this becomes a reality we can say that the teacher has transformed the classroom into a learning environment focused and centered on the students ².

For meaningful learning to be achieved, the student's involvement in the teaching-learning process must be active; in this way, it allows putting into practice the different skills in order to achieve the competencies of each academic year. The involvement of the students has been reduced by the obstructive sleep apnea hypopnea syndrome (OSAHS) as a result of confinement, many of them do not have time to socialize, which leads to the use of mobile devices that cause distraction at the time of learning. to sleep; studies show that it affects the respiratory tract during sleep, which generates sleep interruption, the statistics are 17-24% in men and 5-9% in women; It also emphasizes that this has added to the increase in obesity that generates cardiovascular disease and many students have shown this pathology in the last two years ⁶. To achieve quality education, it is worth mentioning that the implementation of teaching models and strategies is not enough, but other aspects such as the selection of activities that the teacher designs and how they are implemented in the classroom, the form of formative evaluation that is uses in the classroom, the decisions and actions that are carried out post evaluation taking into account the indicators and criteria that are of the utmost importance in a formative evaluation ².

In Peruvian universities, the teaching-learning process, and especially the form of evaluation, is gradually changing; mainly, in the quality of the work of the teachers and how the students perceive these changes in a way that allows them to be safe and develop their different abilities. It is necessary to mention that the development of teachers is fundamental, above all, in the area of formative evaluation to achieve the competencies of each curricular area in order to achieve a higher education model so that the students, at the end of their professional career, can be integrated into a multidisciplinary world of work .

In relation to studies of the subject at an international level, there are different forms of teaching such as learning and evaluation; Likewise, in the training of teachers, a limitation is seen in the strategies for acquiring knowledge and, above all, in evaluation ⁶. On the other hand, the graduate students have a perception about formative evaluation and the qualification experienced during their initial preparation, holding positive opinions that teachers have used in the classroom, being a level of help with 92% compared to 7.8% that indicates the opposite ⁷.

In the same way, the use of different evaluation techniques and instruments is explained, being the perception of the graduates of the different professional careers that both the techniques and the instruments used by the teachers did not involve the students in relation to self-evaluation . peer evaluation and shared evaluation, concluding that these instruments do not allow a formative evaluation ⁸. Therefore, it is important for teachers to conceptually understand integrative assessment within the assessment process in order to train competent teachers who put into practice the proper application of formative assessment ⁹.

If formative assessment is applied appropriately in the development of the learning experience, better results would be obtained in academic performance ¹⁰. In another study on formative assessment from the logical regulation of teaching, objectives and content and assessment activities, differentiated levels of 73.6%, 62.0% and 67.5%, respectively, were obtained, determining a relationship between the formative assessment according to the student's abilities ¹¹. In another work regarding formative evaluation, the teachers demonstrate great knowledge on this subject; also, to have a clear process and roles in the development of learning experiences, but it was perceived that this knowledge about formative evaluation is not put into practice because they do not correctly use the evaluation instruments such as observation to determine the shortcomings of the student. ¹². Teachers, many times, show little appreciation in relation to the collaborative performance of the students, in addition they do not give feedback on the activities, which makes it difficult for the students to know if they are carrying out the activities correctly or not, being important for them to put into practice a autonomous learning ¹³.

It is important that, during the learning process, it is known how much the student is advancing; in this way, obtain results and be able to make decisions that will be opportune so that the skills and competencies that are not achieved by the student are reconsidered; but what is evaluation? Evaluation is an instrumental element of great importance ¹¹. This has a link with the daily life of the human being, since it is not the action of the educational system ^{12,13}; that is , it is aimed at

the process of assessing the abilities and attitudes of the students; but, for this to materialize, it is crucial that the teacher plans and organizes the activities and contents properly, using the appropriate elements to evaluate what has been planned. Five characteristics of formative assessment should be mentioned: a) it is comprehensive; b) is procedural; c) it is systematic; d) it is participatory and e) it is flexible ¹⁴.

The existing types of evaluation, which comply with and are associated with the learning model; that is, if the learning model is behavioral, it will achieve observable behaviors that can be measurable and if the evaluation complies with the cognitive model, then it would be an evaluation in the development of both basic and superior cognitive abilities that the student demonstrates. Reference is made to three types of theories or approaches: 1) positivist approach, 2) sociocritical and 3) sociocognitive ^{15,29-49}.

Of all these types of evaluation, this study focuses on formative evaluation, which is aligned to the recording and analysis of information on the student's learning process and this occurs through hetero-evaluation, self-evaluation, and co-evaluation. It is important to mention that the formative evaluation takes into account didactic procedures in order to identify the progressive advances and the learning needs of the students ^{16, 17}.

In the same way, the formative evaluation is focused on the development of the student, allowing him to detect the advances and difficulties of the teaching-learning process and to be able to make decisions to see the progressive level as planned ^{18,19}. This type of evaluation judges the answers of the students by the teacher, allowing them to be correct or not and, in addition, helps the teacher to identify and analyze each answer to make decisions and provide contributions to achieve meaningful learning ^{20, 21, 22}.

Formative evaluation presents types of evaluation and, in this study, they are called dimensions: a) self-evaluation, the student is the main center and plays an important role in the learning process; b) co-assessment, it gets the student involved in cooperative work and is part of a learning team, making it easier to see their performances among peers and c) hetero-assessment, the evaluation criteria must be focused on the conceptual and procedural for the identification of progress of students en masse ²³.

The formative evaluation focuses on the achievement of learning by competencies of the students; that is, they acquire new ideas or concepts. In this sense, learning is an important aspect for the area of knowledge management. ^{21,24}. Likewise, it is a process that focuses on capturing, encoding, and storing new knowledge with the students' previous knowledge, where the new knowledge develops thinking, problem solving, achieving effective learning by the student ²⁵.

MATERIAL AND METHOD

The hypothetical-deductive method was used in order to carry out the analysis of the variable from the general to the specific, allowing the obtaining and verification of the hypotheses. Regarding the type of research, it was basic, focused on the search for new laws and principles that allow enriching the field of knowledge; the design was non-experimental with a causal explanatory subtype ²⁶. Regarding the population, it was made up of 80 students from a university in Lima; the survey technique was used in order to collect data and then be administered through questionnaires, these questionnaires went through reliability and validity, obtaining a Cronbach's Alpha of 0.893 for the formative evaluation instrument and 0.824 for learning by competence. ; therefore, there is high reliability, the instruments went through two processes, validity and reliability. Validity was determined by three experts with knowledge of formative assessment; Regarding reliability, the pilot test was applied to 20 participants who were not part of the study sample but who had the same characteristics as the study sample. Due to the situation of Covid - 19, these instruments were prepared in a google form and sent to the judges and students.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 1 Crossover of formative evaluation * learning by competences

		Learning by competencies				Total	
		in start	In process	expected achievement	outstanding achievement		
Formative evaluation	not suitable	Count	1	0	0	0	1
		% of the total	1.3%	0.0%	0.0%	0.0%	1.3%
	Inappropriate	Count	5	9	13	4	31
		% of the total	6.3%	11.3%	16.3%	5.0%	38.8%
	Suitable	Count	0	1	25	22	48
		% of the total	0.0%	1.3%	31.3%	27.5%	60.0%
Total		Count	6	10	38	26	80
		% of the total	7.5%	12.5%	47.5%	32.5%	100.0%

Regarding the descriptive results, an inadequate level of 38.8% was obtained on the formative evaluation and a level in process of 12.5% regarding learning by competence.

Table 2 Formative evaluation model influence learning by competencies

Model	Loragithm of the likelihood	Chi squared	gl	S.I.G.	Pseudo R squared
intersection only	60,516				Cox and Snell 0.336
Final	19,588	40,928	two	0.000	Nagelkerke 0.382
					McFadden 0.193

Link function: Logit .

Regarding the contrast test of the likelihood ratio, it was observed that the logistic model is significant with a Chi square of 40.928 and a significance value of =.000, being a value lower than the α of 0.05. Thus, these results indicated that formative assessment significantly influences learning by competence. Those of the Pseudo R squared indicated the existence of three coefficients that measure the proportionality and quality of the fit of the model. Regarding the Cox and Snell Coefficient, the value of 0.336 indicates that 33.6% of learning by competence is explained by the formative evaluation variable. Furthermore, the Nagelkerke test shows a value of 0.382, indicating that the proposed model explains 38.2% of the dependent variable learning by competence. Finally, the McFadden Coefficient obtained the value is 0.193, which indicates that 19.3% of learning by competence is explained by the formative evaluation variable.

Table 3 Parametric test of the significant incidence between formative assessment and learning by competence

Parameter estimates		Estimate	dev Error	Wald	gl	S.I.G.	Confidence interval at 95%	
							Lower limit	Upper limit
Threshold	[Learning by competence = 2]	-3,237	0.515	39,528	1	0.000	-4,247	-2,228
Location	[Formative assessment=1]	-3,795	0.850		1		5,461	-2,128
	[Formative assessment =2]	-2,700	0.723	19,917	1	0.000	-3,740	-1,659
	[Formative assessment =3]	0 ^{to}			0			

Link function: Logit to. This parameter is set to zero because it is redundant.

In relation to the Wald score for said model, the formative evaluation variable responds in an important way to the prediction of the students' learning variable by competence; which indicates a level of 39.528, the significance is =.000; that is, it is less than α 0.05. This allows us to infer that to the extent that the formative evaluation is adequate or better, then learning by competence will also be positively influenced.

Participants and teachers should know about learning assessment so that they can identify difficulties when using instruments to assess learning, in order for education professionals to demonstrate the requirements of soft skills and, above all, collaborative work⁶. These results are similar to our study where students are at a process level with 12.5%, which shows limitations in learning strategies. Evaluation has always been related to the actions of the person and is not an action of the educational system⁸.

Respondents expressed positive opinions on formative and continuous assessment and the development of teaching skills in the classroom. In addition, 92.2% stated that these have helped them compared to only 7.8% who did not indicate a positive relationship⁴. These results are similar to our study; According to the students' perspective, in the teaching process the formative evaluation presents an adequate level; that is, 60.0%, which allows for a positive recognition by the student body compared to 1.3% who indicate an inadequate level. Evaluation is any task that starts from the planning and organization of any organizational culture⁹.

The instruments often do not involve the students in relation to (self-assessment, peer assessment and shared assessment) so it can be said that these instruments do not allow formative assessment⁹. These results differ from our study, since an inadequate level of 38.8% was obtained on the formative evaluation. It is important to describe that when evaluating what is learned, it is a process that is responsible for the observation, collection and analysis of all information from the students in their teaching-learning process, which allows the teacher to make a reflection for the issuance of judgment. Of value and above all to decide opportunely in order to achieve everything planned²⁵.

The proper use of formative assessment ensures that students manage to develop self-regulation techniques that allow them to achieve their learning goals¹¹. Said result is similar to this study, according to the perspective of the students, an inadequate level of 38.8% was obtained on the formative evaluation and a level in process of 12.5% with respect to learning by competence⁶ that is to say, if formative assessment is applied appropriately during the learning experience,

better results would be obtained in academic performance ⁷. Assessing formatively is a process that is responsible for collecting, recording and analyzing information, from different ways: hetero-assessment, self-assessment and co-assessment ¹⁹.

The association of formative assessment at a global level is related to mathematical skills. This result is similar to our study, the Wald score (39.528) indicates that the formative evaluation responds to the prediction of learning by competence, which determines that to the extent that the formative evaluation is adequate or better, then the learning by competence will also be positively influenced. Formative evaluation must be dynamic and formulated according to a model, which facilitates individual learning ²⁵.

formative evaluation from the logical regulation of teaching, objectives, contents and evaluative activities, they obtained differentiated levels of 73.6%, 62.0% and 67.5%, respectively, determining a relationship evidenced between evaluating in a formative way according to the abilities of the student ⁸. These results differ from our result, according to the Cox and Snell Coefficient, the value of 0.336 indicates that 33.6% of the learning by competence is explained by the formative evaluation. The formative evaluation shows that the procedures that the teacher uses will allow him to know the progress and needs of each student in his learning process ²³.

With respect to formative evaluation, teachers show great knowledge on this subject; Likewise, it was perceived that this knowledge about formative evaluation is not put into practice because they do not correctly use the evaluation instruments such as observation to determine the student's shortcomings ⁹. These results are similar to our result, the McFadden Coefficient, obtained the value is 0.193, which indicates that 19.3% of the learning by competence is explained by the formative evaluation.

The formative evaluation focuses on the development of the student in his process of formation of the individual, this evaluation allows detecting the perception of the strengths and weaknesses of the teaching-learning process in order to make decisions and see how far it has come and how far it can go. ²⁴. In this sense, the teachers, in general, show little appreciation in relation to the collaborative performance of the students, in addition they do not give feedback on the activities ¹⁰. These results differ from our result; According to the students' perspective, the Nagelkerke test shows a value of 0.382, indicating that the formative evaluation explains 38.2% of learning by competence, in addition, an inadequate level of 38.8% was obtained on the formative evaluation. And a level in process of 12.5% with respect to learning by competence.

CONCLUSIONS

In light of the results, it can be affirmed that there is a significant impact of the formative evaluation on learning by competences, this is reaffirmed taking into account the value of the Chi square of 40.928 and p value (significance value) is equal to 0.000 compared to statistical significance α equal to 0.05 (p value < α), means rejection of the null hypothesis. That is, by means of the *Pseudo R² test*, the percentage dependency of formative evaluation and learning of competences in students would be presented with a Nagelkerke coefficient of 38.2%, implying that the variability of learning by competences depends on the use of formative evaluation. . Finally, to the extent that formative assessment is better, then learning by competence will also be positively influenced.

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