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FEEDBACK IN E-LEARNING AT A PUBLIC UNIVERSITY

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Abstract

The objective of the present research work is to verify the effect of feedback on the learning of the subject of Psychology in the students of a public university, basic type study, hypothetical deductive method, positivist paradigm, non-experimental and causal correlational design, the instrument used was the questionnaire, for this purpose 2 (two) instruments were applied: one of feedback and the other of Psychology learning to 157 students of the 8 specialties of the Faculty of Education and Social Sciences, who were selected through a simple probabilistic sampling and then stratified by each specialty. The degree of the effect was measured with the ordinal R. The results obtained show us that there is a highly significant effect, both at the level of the independent variable in the learning of the subject of Psychology and in the dimensions of this variable, considering that the p value= 0.000; so, it is concluded that the feedback has a highly significant effect on the learning of Psychology.

Keywords: Learning, teaching, communication, knowledge

Introduction

Feedback in the teaching-learning process is essential and has become an increasingly systematized and correct practice in education in general (ECLAC, 2022). Moreover, it is also the university that applies this process, including using technological platforms (Bórquez et al., 2020).

The situation that higher education has experienced in the period of the COVID-19 pandemic has forced innovative practices in didactics, which have not been created recently, but have become effective with certain insertions in times of social isolation, so that these new practices have become deficient, and are progressively improving due to the teacher's anxiety for the university student to learn (Muñoz, 2021).

In addition, as Muñoz himself argues, a major problem, in the understanding that the priority of a university training center is the student and his learning, teachers have become self-taught regarding the ways in which they are adapting their didactics to the new realities, but, even so,

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students do not achieve the skills required for the different professional careers, since they are not used to develop educational praxis such as.

Thus, the objectives of this research were to determine the effect of feedback on the learning of the subject of psychology in students at a public university, and to explain the effect of feedback on the dimension's attitudes and perceptions, acquiring and integrating knowledge, extending, and refining knowledge, meaningful use of knowledge and mental habits.

The research conducted by Retuerto (2020) refers to the use of advanced technological tools such as the Edmodo platform in the autonomous learning of university students at a university in Lambayeque, Peru, which implies knowing how to provide feedback on what they have learned, concluding that these students improved their level of autonomy in learning thanks to the tool. Likewise, Urrejola-Contreras and Tiscornia-González (2022) argue that higher education students practice better feedback, as well as teachers, thanks to technological tools such as virtual classrooms, platforms, or conferences.

In addition, Flores-Rivas and Márquez-Alvarez (2020) developed a study in which they explained how learning outcomes, technological tools and self-regulation of learning are linked with students at a private university in Lima, Peru, finding that technology contributes substantially to the students' ability to self-regulate their learning, or that it implies a high level of autonomy and feedback praxis; likewise, Salinas (2017) found that technology duly systematized for educational purposes contributes to university students' learning and to the self-evaluation and feedback of what they have developed in classes; likewise, teachers also see their feedback practices favored.

Gonzales and Álvarez (2020) in writing and Wong and Lam (2020) in learning design have used feedback as part of their didactics, in addition to using technological tools, corroborating the effectiveness of feedback for students to learn, doing so in a motivating way.

Moreno et al. (2019) conducted research considering formative evaluation as the axis of their praxis in the practices of Educational Psychology in a Mexican university, with the understanding that this has feedback as an important element of the process; thus, the students of this subject have improved their learning and have favorably valued the accompaniment they received. Alonso et al. (2021) and Dolorier et al. (2022) found in their research, both in an educational program and in a university chair, that feedback is an effective practice and allows for more critical, meaningful and lasting learning.

Feedback is defined as the process of constant evaluation of the activities developed by the students, detecting the successes and errors, and motivating reflection in the student to identify them and choose the best option to optimize or correct, as the case may be, the work executed, considering that the mediator must be probative in this aspect (Ishchenko and Verhhovtsova, 2019; Broakhart, 2017); the feedback process has to be through dialogue and in a favorable or courteous climate (Oker et al., 2018).

Referring to formative feedback, Anijovich (2020), about formative feedback argues that it states that it must be orienting, reflective on the learning process of each student and propulsive, in the sense of awareness of how to overcome mistakes with the relevant commitment; it corresponds to the continuous improvement approach. For Sanchez and Manrique (2018), feedback, as a teaching-learning tool can be didactic, illustrative (conceptual and methodological), instructive (descriptive and explanatory) and suggestive (direct and indirect).

Kartono and Shora (2020) argue that feedback is a learning activity that is performed at the end of a class process; however, Muñoz (2020) states that it is performed throughout the process, allowing the teacher's appropriate intervention and the optimization of what the student has learned; Leibold and Schwarz (2015) refer that the correct feedback, in addition to fulfilling the objective of the feedback itself, reinforces the link between teacher and student, the latter being favored, including motivationally, since the result will be observed in their performance. This feedback needs the teacher-educatee commitment, since it is an element that influences the academic development of students (Peng, 2017).

Feedback, but with a formative character is perceived in an encouraging way in university students, even more so when it redounds in the progress they evidence and avoids punishing in the grading (Cunha et al. 2019, Clark, 2020). Fonseca et al. (2015) emphasize that good feedback will be achieved not only when it is given in a timely manner, but also when the teacher handles it correctly and is prepared voluntarily. Likewise, thanks to the feedback activity, the student can simultaneously learn metacognitive strategies, which further promotes learning (Pearson, 2018; Sarkar, 2020; Khan et al., 2017). The components of the feedback process, according to Ishchenko and Verhhovtsova (2019), are: aimed at raising student self-esteem, aimed at directing to academic production, evaluation, and description.

The dimensions of feedback, as considered by the Ministry of Education -MINEDU- (2020) are student ego, work done, evaluative and descriptive. The student ego dimension consists of the moment in which the negative and positive aspects of what the student has done are specified, so that what is developed in the student is favorable; the work done dimension values the products that the student develops in class; the evaluative dimension analyzes and makes decisions regarding the student's work in the positive and negative aspects, but for this, tools or instruments must be used; the descriptive dimension, which specifies and organizes the favorable and unfavorable aspects in detail, as is, to help in the decision of improvement that the student assumes.

Regarding the integrated formative feedback model proposed by Mollo and Deronceta (2022), they argue that this process facilitates the achievement of favorable results in terms of student learning at any educational level, since its dynamics, in a natural way, becomes a bond of trust and respect between the mediator and the student, the teacher's commitment to be prepared in

communicational terms to provide timely and pertinent guidance, allows a dialogic-experiential praxis with essence in the evaluation and all its components and stimulating in the student the meta-reflection, as part of his autonomy and commitment to his own learning.

Regarding the learning variable in the subject of Psychology, as can be understood from Rozo (2020), who refers that psychology is that which deals with or addresses the cognitive part as a set of thoughts and principles that a person has as a human being and that reveals his knowledge regardless of its nature: previous, new or the link between these. For Marzano and Pickering (2021), learning is a process that the person assumes, first, empirically and around his needs and social interaction and then, learning is the set of experiences that allow the incorporation of new knowledge in the mental schemes of learning of the person, who can use it if the context demands it. In addition, regarding learning, it should be taken into account that it is a process in which the cognitive structures of a person are modified, based on the knowledge he/she already had, that is, he/she obtains new knowledge, which can complementarily increase the knowledge he/she already had or transform what he/she brought as previous experience (Quiñones and Ocaña, 2019).

Consequently, learning the subject of Psychology is the process in which a student transforms his cognitive structures about what he knew about the subject of Psychology, through contact with the new information, thus achieving the competencies foreseen in the subject.

Regarding the transformations that the student experiences when learning, it is important to consider that the student comes to the classroom with knowledge and experiences about something, either directly or superficially; this reality suffers a conflict generated by the teacher, who enables the student to question what he/she knew, to incorporate the new knowledge or the new experience (Picón et al., 2020; From, 2017). The student's motivation-attitude binomial plays a substantial role in learning, even more so in those subjects that are considered "arid" or with little dynamics in their development, considering that learning is knowing new realities (Gómez, et al., 2019).

Learning implies evidencing the achievement of certain standards and requirements that are foreseen to qualify in a certain subject and, in the case of university education, in the whole career; in this sense it is to consider the student's ability to learn as a permanent process, based on what he/she obtained as fundamental learning; that is, it can be understood that in the university he learns or transforms the initial situation of his knowledge and experiences on a subject and based on the requirements established to achieve a competence, and on that which is fundamental, he can continuously learn what, already in the professional field his career and the performance he must perform require him (Black and William, 2018; Muhonen et al. , 2020).

Psychology subject learning considers the following dimensions (Alas and Alvarez, 2020): attitudes and perceptions, acquiring and integrating knowledge, extending, and refining

knowledge, meaningful use of knowledge, and mental habits. Attitudes and perceptions, which is the student's ability to learn, as well as the conditions in which the teaching-learning process takes place. Acquiring and integrating knowledge, which is the acquisition by the student of new knowledge and experiences thanks to the intervention of a mediator. Extending and refining knowledge, which is the deep understanding and applicability of what has been learned, being able to carry out a series of cognitive and technological processes that evidence and consolidate what has been learned. Meaningful use of knowledge, which is the process in which the student uses what he/she has learned in situations that daily life demands or requires. Mental habits, a state in which the student, once he/she has learned, can question the state of things, and propose alternatives, which implies thinking critically, thinking creatively, and thinking in a self-regulated manner. It is important, then, to specify that Psychology learning is oriented in the postulates of socio constructivism, since Vygotsky (cited by Montoya et al., 2019) considered the participation of the mediator or teacher as a priority resource for the student to achieve the substantial link between the knowledge he/she possesses and the new knowledge, thanks to the interaction, in addition, with his/her peers.

METHODOLOGY

His research is of basic type, the method of the work is the hypothetical deductive, the design is non-experimental, cross-sectional, or trans-sectional and causal correlational, by explained what the effect of the independent variable feedback on the dependent variable learning of the subject of Psychology is; in causal correlation studies, the researcher establishes cause-effect relationships (Moreno, 2018).

The population consisted of 265 students of the Psychology subject. The sample was probabilistic, so the size was 157 students.

Table 1 Sample of students from the Faculty of Education of a public university.

SPECIALTY	STUDENTS
Initial Education	30
Elementary Education	18
Communication Sciences	24
Secondary Education: Mathematics, Physics and Computer Science	18
Secondary Education: Natural Sciences and Environment	09
Secondary Education: Social Sciences and Interculturality	18
Secondary Education: English Language	19
Secondary Education: Language and Literature	21
TOTAL	157

Source: Own elaboration

- The data collection instrument was the questionnaire; validity was of content and by means of expert judgment, who evaluated pertinence, relevance, and clarity; reliability was obtained with a pilot test and Cronbach's alpha statistic, the results of which show that the instruments are reliable:
- Instrument: Questionnaire on feedback
- Original name: Questionnaire to evaluate Feedback.
- Original author: León Ramos, Marcia
- Provenance: Piura-Peru
- Adaptation Lima-Peru: Tafur Flores, Geni Llerme (2022)
- Year: 2020
- Administration: Individual
- Scope: University students
- Duration: 30 minutes
- Dimensions: Directed to student ego (6 items), Directed to work performed (6 items), Evaluative (6 items) and Descriptive (10 items).
- Reliability: 0.874
- Rating: 28 items
- Type: To determine feedback in students.
- Questionnaire: Three-choice scale: Never (1), Sometimes (2), Always (3).
- Now after the application of the instruments, the Excel spreadsheet was used for the construction of the respective database; then, the data were imported to SPSS 25.0, for descriptive and inferential statistical processing, considering that the cause-effect relationship was tested, the ordinal regression was applied.

RESULTS

Table 2 Level of the feedback variable

Feedback		Directed to the student ego		Directed to the work performed		Evaluative		Descriptive	
Ranges	F %	F %	F %	F %	F %	F %	F %	F %	F %

High	35	22	27	17	38	24	32	20	36	23
Medium	85	54	95	61	86	55	90	57	88	56
Low	37	24	35	22	33	21	35	22	33	21
Total	157	100	157	100	157	100	157	100	157	100

Source. Questionnaires answered by the units of analysis.

More than half of those who participated in the study were at the medium level, as opposed to almost a quarter who were at the low level and only 22% at the high level.

Table 3 Level of the learning variable in the subject of Psychology

Ranges	Learning in the subject of Psychology		Attitudes and perceptions		Acquiring and integrating knowledge		Extending and refining knowledge		Meaningful use of knowledge		Habits of mind	
	F	%	F	%	F	%	F	%	F	%	F	%
High	25	16	38	24	22	14	36	23	26	17	25	16
Medium	88	56	98	62	98	62	87	55	95	61	88	56
Low	44	28	21	13	37	24	34	22	36	23	44	28
Total	157	100	157	100	157	100	157	100	157	100	157	100

Source. Questionnaires answered by the units of analysis.

- Almost three-fifths of those who participated in the study placed themselves in the medium level, as opposed to slightly more than a quarter who placed themselves in the low level and only 25% in the high level.

Table 4 Effect of feedback on learning in the subject of psychology.

Modelo	Chi-cuadrado	gl	Sig.	Nagelkerke
Hipótesis general	31,847	2	,000	,237
Hipótesis específica 1	16,596	2	,000	,127
Hipótesis específica 2	23,586	2	,000	,180

Hipótesis específica 3	29,230	2	,000	,216
Hipótesis específica 4	34,365	2	,000	,239
Hipótesis específica 5	22,471	2	,000	,161

Source. Questionnaires answered by the units of analysis.

The ordinal regression tests applied show that the feedback variable has a significant effect on the learning of the subject of Psychology, because the Sig. value is equal to 0.000 less than the 0.000 reference; also, the Nagelkerke's R2 value indicates that the effect is equal to 23.7%.

Also, the results showed that the feedback variable has a significant effect on the dimensions of learning the subject of Psychology (attitudes and perceptions, acquiring and integrating knowledge, extending and refining knowledge, meaningful use of knowledge and mental habits), because the Sig. value is equal to 0.000 less than the referent 0.05 in all cases; also, the Nagelkerke's R2 value obtained in all cases fluctuates between 16.1% and 23.9%.

DISCUSSION

Considering that the purpose of this research was to explain the effect of feedback on the learning of the subject of Psychology in university students of a Peruvian educational entity, the results obtained presented in Table 4 show that this effect is significant, so that the learning of the referred subject does depend greatly on the forms of feedback provided by both the teacher and the student.

We agree with the findings of Urrejola-Contreras and Tiscornia-González (2022), since these researchers maintain that feedback is fundamental for learning, and moreover, it is a process that can be carried out, even using technological resources, since its dynamism and the fact that it guides the process makes possible the use of advanced technology for education.

Dolorier et al. (2022), in the same sense, state that feedback is a process that, substantially, links the mediator with the student, creating a favorable climate for it to take place in the best way, being the professionalism of the teacher the one that will adequately guide this activity.

This reality can be observed in the results of tables 2 and 3, which refer that the level in which students perceive the feedback and in which they place in the learning of Psychology is medium, existing absolute concordance in this aspect, which has been corroborated with the ordinal regression test.

In this sense, considering that there are a series of background aspects that are developed when carrying out the feedback, from the phase of identification of errors and successes to the phase of questioning and proposal, Flores-Rivas and Márquez-Alvarez (2020) state that it is feasible to use technological resources that make this formative activity more agile, given that the student has already become familiar with these tools and the teacher is being inserted into the digital

world, so that what is done in the direct and personal interaction class can be complemented with asynchronous virtual feedback, to ensure the learning of the subject of Psychology at the university.

Moreno et al. (2019) consider that the learning of a subject such as Psychology, is ensured with the use of formative feedback, so, it is understood, the realization of this action can be face-to-face, virtual, or face-to-face-virtual, since the objective is the learning of the university student.

The formative feedback and socio-constructivist approaches hold that the conditions in which the evaluative processes must occur, specifically the feedback is of trust and formative essence and the way to direct the feedback effectively and safely towards learning in terms of meaningfulness and functionality is the assertive interaction between the mediator, who is responsible for the implementation of a favorable climate for the process, and the student, respectively.

CONCLUSIONS

First. There is a significant incidence of feedback on learning in the subject of psychology in students at a public university, 2022, since the significance level calculated is .000, this value is less than 0.05, so it is established that there is dependence. Nagelkerke's R² was calculated at .568 explaining the variability of the data and it is established that the technological tools and feedback influence 56.8% of the learning in the subject of psychology in students at a public university and 43.2% is explained by other variables that are not studied in this research.

Second. There is a significant effect of feedback in the dimension's attitudes and perceptions, acquiring and integrating knowledge, extending, and refining knowledge, significant use of knowledge and mental habits, because the level of significance calculated is, in all cases, .000, this value is less than 0.05, so it is established that there is dependence. Nagelkerke's R² corroborates these results.

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