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ASSESSMENT IN VIRTUALITY SCENARIOS: ANALYSIS OF TEACHERS CONCEPTIONS IN TRAINING

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Abstract

The research article aims to investigate the conceptions that students and teachers of a Bachelor's degree program in Early Childhood Education have about the evaluation of learning in virtual contexts (e-assessment). A survey was applied to 135 students and 29 teachers. For each group of informants, an instrument was designed in which a first section associated with general aspects of the informants such as age, gender, among others, was considered, followed by a block of questions in which the participants had to evaluate, by means of a Likert scale, the level of frequency with which events occurred in the framework of the teaching-learning process and its relation with the evaluative processes in virtual contexts. The results show that teachers have a favorable conception of each of the aspects associated with the evaluative practice through the use of digital resources, while students state that e-assessments do not meet the objectives of the subjects and do not contribute to the development of critical thinking.

Keywords: e-assessment, learning, virtuality, early childhood education.

RESUMEN

El artículo de investigación pretende indagar las concepciones que tienen estudiantes y docentes de un programa de Licenciatura en Educación Infantil sobre la evaluación del aprendizaje en contextos de virtualidad (e-evaluación). Se aplicó una encuesta a 135 estudiantes y 29 de docentes. Para cada grupo de informantes se diseñó un instrumento en el que se considera una primera sección asociada con aspectos generales de los informantes como lo es la edad, el género, entre otros; seguido de un bloque de preguntas en los que los participantes debían valorar mediante una escala Likert el nivel de frecuencia con que ocurrían eventos en el marco del proceso de enseñanza-aprendizaje y su relación con los procesos evaluativos en contextos virtuales. Los resultados muestran que los docentes poseen una concepción favorable sobre cada uno de los aspectos asociados con la práctica evaluativa por medio del uso de recursos digitales, mientras que los estudiantes manifiestan que las e-evaluaciones no cumplen con los objetivos de las asignaturas ni aportan al desarrollo del pensamiento crítico.

Palabras clave: e-evaluación, aprendizaje, virtualidad, educación infantil

1. INTRODUCTION

Inquiring about the field of evaluation in educational processes in virtuality scenarios refers to "improvement, recapitulation and exemplification and to what extent evaluators require special qualifications", as the main uses given to evaluation (García-Quintero & Villamizar Suárez, 2017; Acevedo-Jaimes & González-García, 2017; Mora, 2004). In this last "use", it can be seen reflected how, through evaluation, aspects to be improved or gaps to be filled within the specificity of a subject can be evidenced, which of course is linked to an "institutional theory" and an "existing evaluative culture", and will guide the evaluative process of the same, as well as of the various fields to be evaluated (Mora, 2004).

Now, considering the general concept of assessment, this goes back to the quantification of results, so that in education there is also a tendency towards a quantification of what has been learned, which according to Casanova (1998) "[...] makes it equated to "measurement" and that for many years (too many, since sometimes it reaches these days) what is attempted when assessing is to measure the amount of knowledge mastered by students" (p. 1). This, according to the author, can be arbitrary and hides an "improper way of evaluating" (p. 2) of teachers, since, in addition to the "lack of reliable reference elements" (p. 2), various circumstances of changing personal temperaments, aspirations and tendencies influence when evaluating (Galí, 1934, cited in Casanova, 1998).

Currently, and after the development of human sciences, the new ways of learning and the ways of learning according to the current concept, a qualitative model "[...] capable of offering enriching data on student development" (Casanova, 1998, p.3) is opposed to this criticism of the quantitative model of evaluation. But while this is positive, it has been difficult to ensure that what is said in theory about evaluation is also done in practice, where it should not be taught [...] to pass. One teaches and learns in order to achieve a full and integral formation as a person" (Casanova, 1998, p. 4).

Del Pilar and Talero (2010) add to the above, stating that evaluation, beyond measuring results, contributes to students achieving the goals agreed upon in the teacher-student relationship. The same authors mention the merit and value that systematization gives to the evaluation process, its temporality and a "theoretical-practical reflection on acquired experiences" (p. 66). Regarding this systematization, one can cite what the same author points out further on, where he states that evaluation also embodies clear objectives, that it is not only a process of "spontaneous observation" (p. 86), but a structured process (Del Pilar and Talero, 2010).

Likewise, Gil et al. (1999) reaffirm that learning to learn requires a certain shared motivation from teachers in their evaluation processes, which should not be limiting for making the decision to learn significantly from students, a situation that applies to both students and teachers, who limit themselves to a rating of what is easily measurable, avoiding imprecise answers:

if the evaluation system is limited to the final grade of their performance, expressed in a test, the students' efforts will be directed to foresee what is going to come out in the exam, and to give the "correct" answers trying, of course, to hide any doubt or misunderstanding they might have, to obtain the highest score, rather than to achieve learning with understanding (Gilet al., 1999, p. 2).

Now, such motivation and security in one's own effort, for the authors, can be approached, from an evaluation parallel to the teaching - learning process, where small tests can be done, on key topics in a large part of the classes, to allow creating positive expectations and calling attention to possible black spots or key aspects at the moment when they are being worked on. Additionally, it allows gathering a high number of results from each student sensibly reducing the randomness of the single assessment (Gil, Martínez & Verdú, 1999; Urbina, 2017).

In addition to the above views, Ramírez and Viatela (2017) state that evaluation can behave as a "mechanism to improve education in the country and, in particular, to offer relevant, equitable and contextualized training, taking into account not only the individual, but also

the relationship that he/she has with his/her environment" (p. 211). To support the above, the authors point out that evaluation is regulatory of any process and that it measures the efficiency and effectiveness of the specific system in which it is applied; which reflects again, that for there to be quality, there must also be an evaluative process that is individual and adapted to the context of the institution, that is, again, one can see the attempt to overcome standardization in evaluative processes (Niebles-Nuñez et al., 2017).

If a lasting learning is desired in students, it is important to review what students talk about, to find signs that allow teachers to elucidate "the way of thinking of students and the knowledge and conclusions that have been fixed in a lasting way" (Grueso et al., 2014, p. 10), which can be reached by conducting a questionnaire before and after the class. The results of these authors allow to evidence positive fruits in the contrast between initial results (initial questionnaires) and final results (final questionnaires), in addition to the fact that they ponder on the teacher's know-how, stating that what they teach and work on in the classroom must be adjusted to what is demanded in the evaluation. However, this challenge is far from the usual teaching practice (p. 11), which should be oriented towards fun and reflective teaching (Grueso et al., 2014).

In addition to the above, according to Romero (2013), one must admit that evaluation goes hand in hand with continuous feedback of students' actions. The evaluation and monitoring of student progress can occur through the generation of activities according to the programmatic contents, which must consider the pace of the group of students, where previous knowledge can be elucidated according to the idea that gives the context to the students, through brainstorming or direct questioning (pre-structural part), in addition to the fact that the laws can be described from mathematical equations to reach the solution to problems:

For example, if the topic were Newton's Laws, you can start reasoning with the students about the reason for their own movement, and then mention the concepts that in this case would be the statements of Newton's three Laws and that explain the movement made by any body (Romero, 2013, p. 29).

According to this author at this point, the student can be asked to list a series of bodies in motion in which he/she identifies the presence of the three laws of motion (Romero, 2013) to review and provide feedback to the students' activities in order to solve doubts, correct errors and make the students aware of their progress. To the above, the contribution of the International University of La Rioja (UNIR, 2020) resorts to continuous observation, tests, review of tasks and interviews, as techniques of the evaluation process with which it will be possible to analyze and compare the behavior and performance of students with the objectives set, to give the corresponding grade to each student.

But the above proposals, notions and evaluative practices also reveal certain problems in the school context, these problems deal with the mechanical-memoristic sense of teaching and an evident hierarchization where the students with the lowest resources are the most affected and the most submissive are the most recognized in the evaluation (LaCueva, 1997). This author lists these problems, in a generic way, as follows:

the emphasis on the most superficial and lower-level learning, the totalizing illusion, the impossible diagnosis as a prior step to any teaching, essentialism, the error taken as abnormality, the labeling role of the grade, the misleading instrumentalization, the excessive growth of the evaluative action as judgment and sentence (p.1).

Taking the topic to the specific case of Colombia, where there are guidelines and regulations on classroom evaluation, whose characteristics are: "It is formative, motivating, orienting", its variety in evaluation techniques and triangulation of information, it focuses on ways of learning without neglecting the quality of what is learned, "It is transparent and continuous" and encourages self-evaluation and democracy; census evaluations, where students in grades 11, 3, 5 and 9 are evaluated through the SABER tests, given by the ICFES, and institutional evaluations where rectors must submit their annual self-evaluation of the service and financial information to the corresponding Secretariat of Education (Ministry of National Education, 2017). All these formative spaces described, which are part of the traditional evaluation, also generate

important elements of reflection in virtual contexts such as those addressed in this text; elements that do not differ significantly from the traditional and the virtual.

METHODOLOGY

This research adopts a quantitative method at a descriptive level with a cross-sectional approach following a field design (Maldonado et al., 2021), given that the opinion of teachers and students linked to a training program for Early Childhood Education graduates is collected after more than a year of working in a non-face-to-face modality assisted by ICT resources.

For data collection, the application of a questionnaire is used, considering a first section associated with general aspects of the informants such as age, gender, among others; followed by a block of questions in which the participants had to evaluate through a Likert scale identifying the level of frequency with which these events occurred in the framework of the teaching-learning process (Gamboa, 2019). The questionnaire was created as a Google Form application to later share its link.

The sample consisted of all teachers employed and students enrolled for the second semester of the year 2021 in the Bachelor's degree program in Early Childhood Education at a public university in northeastern Colombia. The total number of teachers who responded to the survey corresponds to 87.9% (29 teachers) and 91.2% of students (135).

Similarly, a quantitative analysis of the information provided by Scopus under a bibliometric approach on the scientific production related to E-evaluation and Educational Actors in the field of Early Childhood Education identified in order to know the approach of the scientific papers and the contribution that Latin American institutions have made to the bibliography related to the study of the aforementioned topic through the information extracted from the Co-occurrence map of key words.

For the proposed biometric analysis, the selection of articles or research papers is carried out by establishing search criteria in the Scopus platform.

- Research papers (articles, conference papers, books, book chapters, among others) whose variable of study is E-evaluation and Early Childhood Education.
- Research papers published in Latin American countries.
- Publications in high impact journals indexed in Scopus database during the period 2016-2021.

3. RESULTS

The results of the research are reported according to the sources of information, presenting first the opinion of the teachers and then confronting it with the opinion of the students.

3.1 TEACHERS' CONCEPTIONS

Table 1 summarizes the main characteristics of the group of informant teachers, highlighting that it was the teachers working in the first and fourth semester who actively participated in filling out the instrument, with a predominance of the female gender, highlighting that approximately 58% of them are between 25 and 45 years of age.

Table 1. Characteristics of teacher informants

Variable	Response level	Percentage
Academic semester in which you work	First	34.4%
	Second	13.8%

	Third	17.2%
	Fourth	34.5%
	Total	**100.0%**
Genre	Female	65.5%
	Male	34.5%
	Total	**100.0%**
Age range	From 25 to 35 years old	37.5%
	From 36 to 45 years old	20.7%
	From 46 to 55 years old	31.0%
	56 years and older	10.3%
	Total	**100.0%**
Academic department to which it is attached	Social Sciences, Humanities and Languages	58.6%
	Mathematics	6.9%
	Pedagogy, Andragogy, Communication and Multimedia	34.5%
	Total	**100.0%**

Figure 1 shows that, in general, approximately 97% of the teachers surveyed have a favorable conception of each of the aspects associated with evaluative practice through the use of digital resources (e-assessment).

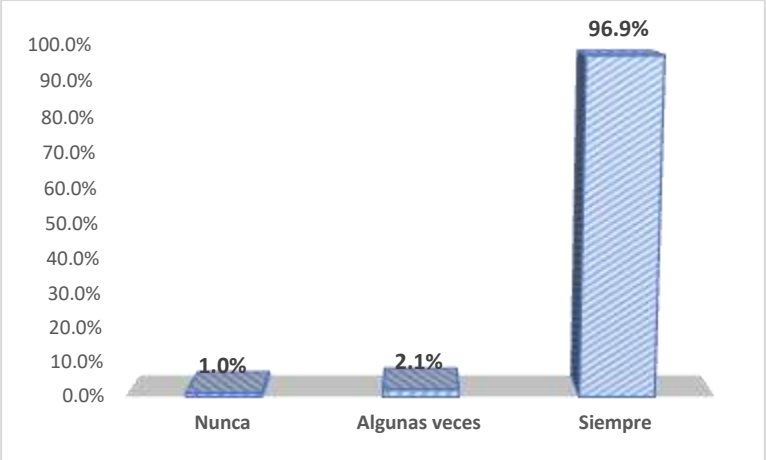

Figure 1. Teachers' conceptions of the e-evaluation process

Table 2 shows the aspects that are considered relevant in the opinion of the teachers linked to the Bachelor's degree program in Early Childhood Education. These aspects stand out as relevant in the evaluative practices of the teachers who, in their opinion, provide concrete and precise indications at the moment of applying evaluative processes, understanding the importance of the correct use of technological resources in the educational processes under non-face-to-face teaching models. Within the evaluation process, the academic needs that require reinforcement are recognized, in order to guarantee learning, the

development of critical thinking and the achievement of the objectives set in each subject. As a recommendation, in the opinion of the teachers surveyed, this experience led them to value the application of this type of tests despite the fact that they require more effort than the evaluations practiced when the training process was attended in a face-to-face way, since they emerge as another alternative within the teacher's pedagogical practice.

Table 2. Teachers' conceptions of e-assessment.

	Response options		
Aspects evaluated	Never	Sometimes	Always
The directions you give in the e-assessments to your students are accurate and complete.	0.0%	0.0%	100.0%
The use of technological resources is fundamental for teaching-learning processes in virtual contexts.	0.0%	0.0%	100.0%
The e-evaluation makes it possible to identify the aspects to be taken up or reaffirmed on the topic addressed.	0.0%	3.4%	96.6%
Do you consider that the resources applied by you in the e-evaluation meet the objectives for which they were developed?	0.0%	3.4%	96.6%
Considers that the activities proposed in the e-assessment promote student learning.	3.4%	0.0%	96.6%
Considers that e-assessment stimulates students to improve their educational process.	3.4%	0.0%	96.6%
E-assessments have a more rigorous preparation process than face-to-face assessments.	0.0%	6.9%	93.1%
E-assessments foster the development of critical thinking in students	3.4%	0.0%	96.6%
Believes that e-assessment is relevant in higher education	0.0%	3.4%	96.6%
From your experience, would you recommend the use of e-evaluation to your colleagues?	0.0%	3.4%	96.6%
Total Average	**1.0%**	**2.1%**	**96.9%**

3.2 STUDENT CONCEPTIONS

Table 3 summarizes the main characteristics of the group of student informants (114 people), highlighting that the highest participation was obtained from those who are enrolled in the third semester, highlighting that in the Bachelor's degree program in Early Childhood Education there is a predominance of the female gender and where approximately 55% do not exceed 19 years of age.

Table 3. Characteristics of student informants

Variable	Response level	Percentage
Academic semester in which you work	First	24.6%
	Second	25.4%
	Third	36.8%
	Fourth	13.2%
	Total	**100.0%**
Genre	Female	96.5%
	Male	3.5%
	Total	**100.0%**
Age range	From 17 to 19 years old	55.3%
	From 20 to 22 years old	41.2%
	From 23 to 25 years old	1.0%
	From 26 years and older	1.7%
	Total	**100.0%**

As shown in Figure 2, it is evident at a general level that teachers have a much more favorable conception of e-assessment than students. It is worth noting that among the items evaluated, some of them are directly associated with the teacher's practice, which could be an explanation for the favorability exhibited by them, in contrast to the opinion of the students.

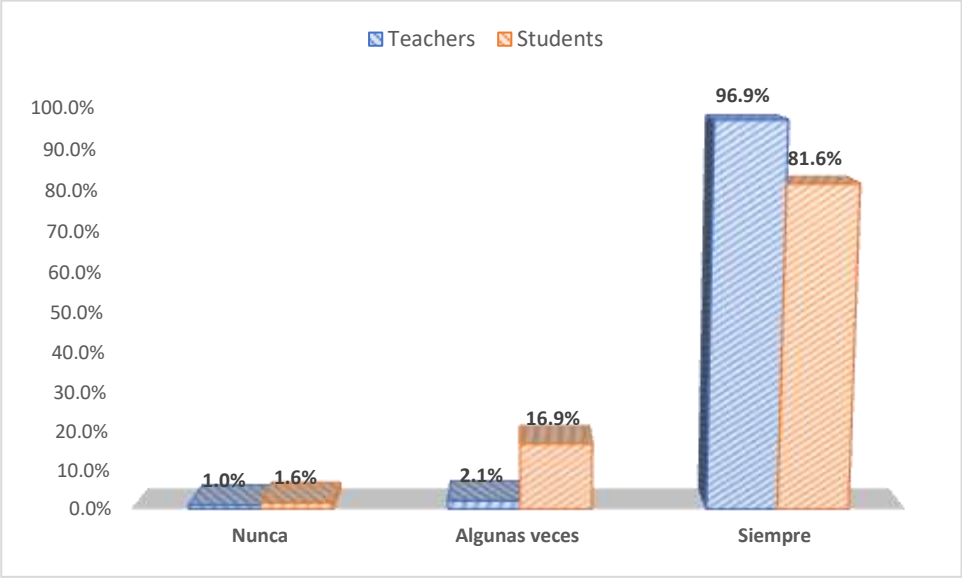

Figure 2. Comparative of teachers' and students' conceptions of the e-evaluation process.

Table 4 describes aspects that are considered relevant in the opinion of the students enrolled in the Bachelor's degree program in Early Childhood Education. It is highlighted as

important aspects in the evaluative practices of teachers, that they provide concrete and precise indications at the moment of applying evaluative processes, where the importance of the use of diverse ICT resources in non-face-to-face contexts and with greater protagonism in the training of professionals is recognized. In the results, five students surveyed consider that e-assessments do not meet the objectives of the subjects and do not contribute to the development of critical thinking in students. At the same time, it was identified that approximately one out of ten students is in favor of the application of e-assessments, since they consider them less rigorous than those applied in person.

Table 4. Teachers' conceptions of e-assessment

	Response options		
Aspects evaluated	Never	Sometimes	Always
The indications you receive from your teacher in the e-assessments are accurate and complete.	0.0%	14.9%	85.1%
The use of technological resources is fundamental for teaching-learning processes in virtual contexts.	0.9%	6.1%	93.0%
The e-assessment allows to identify the aspects to be taken up again or reaffirmed on the topics seen.	0.0%	16.7%	83.3%
The resources applied by the teacher in the e-assessment are considered to meet the objectives of the course.	0.0%	21.0%	79.0%
Considers that the activities proposed in the e-assessment promote student learning.	0.0%	18.4%	81.6%
Considers that e-assessment stimulates students to improve their educational process.	1.8%	14.0%	84.3%
E-assessments are more rigorous than face-to-face assessments	9.6%	27.2%	63.1%
E-assessments foster the development of critical thinking in students	0.0%	20.2%	79.8%
Believes that e-assessment is relevant in higher education	1.8%	13.2%	85.0%
Total Average	**1.6%**	**16.9%**	**81.6%**

BIBLIOMETRIC ANALYSIS

Keyword co-occurrence map

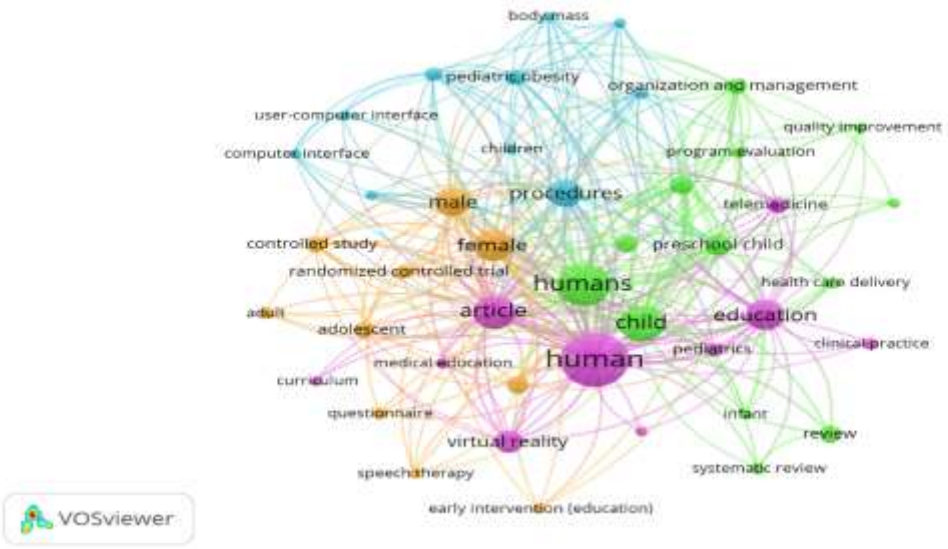

Figure 3. Cooccurrence of keywords.

Among the 43 publications identified that meet the search parameters established in the methodology proposed for this research, it was found that there are four main groups of research with related topics, headed by those that focus their study methodologies on educational practice in children, preschool, virtual reality, virtual questionnaires, from which it can be inferred that the application of digital tools for evaluation in academic processes are taken into account in the scientific community as an important contribution to the study of quality in early childhood education. This is demonstrated in articles such as "*Maintaining professional standards in the preparation of early childhood teachers: Evaluation of adaptations to experiences based on fieldwork during COVID-19*" (Callaway-Cole & Kimble, 2021), which addresses a very important issue and is the management of quality in the preparation of teachers of children in preschool and primary education in times of pandemic as the one currently experienced by the disease called Covid-19 and how all the training material was virtualized in attention to the measures of restriction and social distancing imposed by governments worldwide to prevent the growth of contagions and deaths due to the aforementioned virus.

The results highlight the importance that educational management gives to the management of the perception of children, parents and teachers in the training processes that are carried out thanks to the use of digital platforms and technologies for communication and information, through the constant evaluation of academic processes measured by means of interviews, questionnaires, surveys, self-evaluation by teachers, monitoring of virtual sessions, among others.

4. CONCLUSIONS AND DISCUSSION

The study reveals important aspects related to e-assessment from the point of view of teachers, most of whom consider that assessing in virtual contexts favors student learning in all areas, but specifically favors the field of early childhood education. Likewise, they affirm that this type of evaluation significantly detonates students' critical thinking. In this sense, research such as those of Barberá (2016), Sáiz (2011), Yuste and Blázquez (2012), Avendaño-Castro et al. (2021), and Maldonado et al. (2021) show that evaluation in virtual education has advanced significantly in diagnostic, summative and formative evaluation processes with tangible evidence in higher education.

Another important element to highlight is the teachers' self-affirmation about their own evaluative practice, when they affirm that it provides concrete and precise indications at the moment of applying evaluative processes to their students; however, the students' conceptions differ significantly from these

assertions. In this sense, it is important to note that this study was conducted in times of pandemic in a transition from face-to-face - traditional education to education mediated by digital technologies where there were important difficulties such as work stress (Hernández et al., 2021), digital gaps, loss of interest of students in education mediated by digital technologies, among others (Avendaño et al., 2021) and this may influence these conceptions of students.

It is worth highlighting the work of educational institutions reflected through the volume of publications concerning the study of the perception of the different actors involved in the process of education of preschool and elementary school children through which different strategies are documented for the collection of valuable information in the feedback of methodologies based on the generation of new knowledge through digital tools.

Finally, e-assessment requires a greater effort than the assessments practiced when the training process was attended in person, since it emerges as another alternative within the teacher's pedagogical practice. Studies state that more than the evaluation itself and its rigorousness, it is the transition from analog to digital, which required accelerated development of teachers' digital competencies.

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