

## **Assessment of the Learning Process in Virtual Education Among Peruvian University Students During the COVID-19 Pandemic**

Evaluación del proceso de aprendizaje en la educación virtual entre los estudiantes universitarios peruanos durante la pandemia de COVID-19

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### **ABSTRACT**

This qualitative study examines learning assessment in online education based on the perspectives of 12 nursing students interviewed via Zoom. Students reflected on the meaning, advantages, limitations, outcomes, and tools of virtual theoretical-practical evaluation. Findings reveal that online assessment ensured continuity in verifying learning despite physical distance. However, major weaknesses were identified, including limited integrity in virtual exams and insufficient support for developing and validating professional skills and competencies. Additionally, the implementation of new evaluation techniques and digital tools produced mixed effects on students' academic performance, influencing final scores both positively and negatively.

**Keywords:** Educational assessment; teaching; learning; virtuality; nursing education

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## **RESUMEN**

Este estudio cualitativo analiza la evaluación del aprendizaje en la educación en línea a partir de las percepciones de 12 estudiantes de enfermería entrevistados mediante Zoom. Los participantes reflexionaron sobre el significado, ventajas, limitaciones, resultados y herramientas de la evaluación teórico-práctica virtual. Los hallazgos muestran que esta modalidad permitió la continuidad en la verificación del aprendizaje pese a la distancia física. Sin embargo, se identificaron debilidades relevantes, como la limitada integridad de los exámenes virtuales y el insuficiente apoyo para el desarrollo y validación de habilidades y competencias profesionales. Además, la incorporación de nuevas técnicas y herramientas evaluativas tuvo efectos diversos en el rendimiento académico final.

**Palabras clave:** Evaluación educativa; enseñanza; aprendizaje; virtualidad; educación *en enfermería*.

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## **INTRODUCTION**

Assessment in the educational process is a crucial stage in any academic system, performed to assess the level of knowledge, abilities, and values acquired by learners (Ley & Espinoza, 2021). Additionally, it enables many students to meet their goals and serves as a key source of data for the instructor, allowing them to assess the learner's actual progress (Selva et al., 2019). Due to the COVID-19 crisis, higher education has encountered significant challenges in adapting learning frameworks to meet evolving demands (Mokhnacheva, 2020; Radu, 2020; Torres, 2021). The rise of virtual evaluations has been critical and unavoidable to determine if learners have acquired the necessary skills and competencies (Nadkarni & Prügl, 2020; La Rosa & Commodari, 2022).

Teachers bear a significant responsibility in guiding and assessing individuals virtually (El Said, 2021; Romero, 2023), the instructor, as well as preparing to achieve area objectives and encouraging student inquiry (Solera et al., 2022).

Vialart and Medina (2020) state that the difficulties faced by nursing educators in online teaching environments stem from the excess of asynchronous resources, as forums created remotely in the communication often gather more issues due to connectivity challenges, which negatively influence evaluations. Tinajero and Salazar (2019) discovered that clinical instruction evaluation focuses on assessing competencies including cognitive, motor, and social skills. However, educators are not always effective assessors in these digital environments, and training in ICT is essential before engaging with students online.

At present, challenges in assessment due to the pandemic persist, causing frustration among instructors training future nurses. These students have been studying online for over two years, facing multiple limitations such as increased workload and poor Internet access, leading to significant issues in conducting evaluations (Gálvez et al., 2022; Hernández, 2023).

This study offers a reflection on how the virtual evaluation process was carried out in the training of nursing students at a private university in Peru during the pandemic. The research was conducted from an interpretative paradigm and the viewpoint of the main actors involved in the assessment process, namely the students. The aim was to describe the assessment of learning in virtual education during the pandemic among nursing students at a private university in Peru.

### **Theoretical Aspects**

Assessments are a pivotal element in the teaching-learning process within higher education institutions. They not only indicate the student's progress to the instructor but also place the learner in a simulated context of what the evaluation will entail, providing better preparation and a sense of future assessments. Due to technological advancements and the development of tools and systems, the format of evaluations has become a feasible method for evaluating students in these settings (Appiah et al., 2018). However, this often raises the issue of whether the validity of online assessments matches that of in-person methodologies (Algahtani, 2021), as students have access to a broad range of prohibited

tools that they may exploit to their benefit, which has led to many critiques of current electronic assessment policies (Timmis et al., 2015).

Virtual assessments evaluate the student's competencies, skills, aptitudes, and abilities, aimed at enhancing teaching practice (Cervero, 2020; Sánchez et al., 2021). Moreover, competency-based evaluation ensures learning quality, as it influences decision-making and critical thinking in students, benefiting teachers by allowing them to reassess their practice and improve their techniques (Ibarra et al., 2021). Thus, evaluation tools assist educators in reinforcing students' areas of weakness.

Assessment in higher education emphasizes the development of competencies and skills, leading to changes in self-assessment and evaluation strategies. Quality assessment is rigorous, reliable, practical, and engaging within the teaching-learning process. Planning and designing trustworthy tools for high-level evaluation in higher education students is crucial (Ibarra et al., 2020).

Currently, the instructor is viewed as an organizer, guide, learning manager, facilitator, and advisor. It utilizes ICT resources for research and acquire new insights for the development, assessment, and dissemination of nursing knowledge. However, a key challenge is recognized in the adoption, awareness, and utilization of these tools as an essential part of students' competency development. For this reason, at an interdisciplinary level, there is a growing need for nursing teachers and students to develop strategies, programs, and inter-institutional virtual training models, especially during a pandemic, to strengthen the exchange of knowledge, experiences, and resources, as support to ensure what is taught and how it is delivered through hypothetical scenarios (Vázquez et al., 2021).

The educator provides the theoretical and technical groundwork necessary for practice, with the goal of assessing student learning and the effectiveness of the pedagogical strategies used by instructors (Elizalde et al., 2020).

This has led to considerable uncertainty within the university community due to the COVID-19 pandemic, which allowed academic activities to be adapted to meet these needs (Ortega et al., 2021).

## **METHODOLOGY**

The study adopted a qualitative, descriptive design (Conejero, 2020), aiming to understand the phenomenon holistically from the students' lived experiences. It was

conducted at the Nursing School of the Catholic University Santo Toribio de Mogrovejo, an institution with a strong pedagogical, scientific, and humanistic tradition. Nursing education spans ten academic semesters; in the third semester—when students take the highest number of courses—all subjects were delivered virtually due to the pandemic.

The population consisted of 68 nursing students from a private university in Chiclayo, Peru, and the sample included 12 students aged 18 to 24 years (83% women, 17% men), selected through non-probabilistic convenience sampling using the snowball technique (Parra & Vázquez, 2017; Hernández & Mendoza, 2018). Sample size was determined by data saturation and redundancy (Ortega, 2020). All participants attended virtual classes regularly via Zoom; 75% used laptops exclusively, while 25% used both laptops and mobile devices. Students enrolled in the 2022-I semester, those with irregular attendance, and pilot-test participants were excluded.

Data were collected through semi-structured, in-depth interviews conducted via Zoom between March and April 2022, lasting approximately 25 minutes. The interview guide, developed and validated by expert judgment and pilot testing, included open-ended questions about meanings, experiences, challenges, academic performance, academic integrity, and recommendations regarding virtual evaluation. Interviews were audio-recorded with informed consent, transcribed verbatim, and returned to participants for validation to enhance credibility. Recordings will be deleted after two years.

Data were analyzed manually using content analysis (Fernández, 2006) across three phases: pre-analysis, coding, and categorization, resulting in the identification of five final categories.

## **RESULTS AND DISCUSSION**

After processing the data, key aspects regarding the object of study have been identified, which are presented below in the following categories:

a) Meanings of learning assessment in virtual instruction: Strengths and weaknesses

Most students mentioned that evaluation in the teaching-learning process during the pandemic has enabled teachers to assess the knowledge and learning of students, demonstrating strengths such as the continuity of learning assessment, though not perfectly during the training in COVID-19 times; in contrast with several weaknesses

they perceive, such as the lack of honesty in the execution of online exams and the lack of assistance in acquiring and verifying skills and abilities as it was done in person, as evidenced by the following testimonies:

«...online assessment does not meet the objectives like in-person assessment, but it was useful to continue our training as nursing students during the pandemic...» E05.

«...in virtual exams, most students look up the answers in the browser because the professors don't see us, so they can't really say anything...» E07.

«...in online evaluation, the objectives in nursing student education are met at 70%...it's not the same when the teacher is present and asks you to perform a procedure to confirm how you do it. We might know the theory, but it is entirely different when you go to in-person practices...» E10.

b) Theoretical-practical online assessment in the teaching-learning process during the pandemic

Evaluation of theoretical aspects: Most of the students interviewed said that they are evaluated through unit exams, group and individual interventions, with the goal of understanding the student's learning level. Students noted: «...in the theoretical aspect, teachers evaluate us through exams, oral participation, and individual and group presentations...» E04.

«...in the theoretical part, they assess us based on the guides we worked on, drawing conclusions from each topic at the end of the class, and in the end, teachers ask if we have any questions or if we want to add something...» E06.

Assessment of practical aspects: Most of the students interviewed mentioned that the practical evaluation is done through workshops, video presentations, and clinical case applications, where they must apply the nursing care process (NCP), following its stages, aimed at developing skills and competencies in the practical aspect, and they must show the execution of procedures, which are carried out in each virtual class. Participants shared:

«...The practical assessment is done through workshops with clinical cases, where teachers ask questions about possible diagnoses and ask us to demonstrate procedures again...» E01.

«In the practical part, we are evaluated through videos, where they show us how to give injections and set IVs, and we have to pay attention to learn...» E03.

c) Impact of virtual assessments on the student's final grade

The impact of virtual assessment on the learning outcomes of some third-semester nursing students was positive, as it allowed them to achieve a high average, while for others it was negative, as their average was low. This is revealed in the following statements:

«...I am not in a high range, but my grades are not low either; Yes, I have had low grades because I don't learn much through a screen, I would rather be in person and see the practical side...» E06.

«My grades are decent, which puts me in the half-scholarship range; I consider myself a determined person because when I set my mind on something, I accomplish it... but today, I didn't perform well on my exam, I had an issue...» E10.

#### d) Tools used in online assessment during the pandemic

The students report that, amid the pandemic, professors are currently using a variety of tools to evaluate both theoretical and practical aspects, the most frequently employed being online quizzes, rubrics for evaluating oral presentations, and concept maps and comparison checklists to assess the procedures shown in the requested videos. The students explain:

«Concept maps are evaluated, which we must present at the end of the lesson, and the professors reinforce the information given and score us using a rubric...» E02.

«We are assessed through an online quiz with the camera on... they evaluate the presentations, the videos shown; the professor selects who will present, or each student presents part of the work they completed, and we are graded with rubrics or checklists...» E07.

«The assessment is done through quizzes, which cover both theoretical and practical aspects, as they include clinical cases and ask questions...» E08.

#### e) Suggestions for online assessment

Most participants offered suggestions to improve virtual assessments, making them more effective for the training of nursing students. They emphasized the importance of conducting all assessments synchronously, with the camera turned on and during class sessions, to boost credibility, ensuring students respond truthfully to what they have learned in each session. They propose:

«...administering different exams, with the camera on and within the class session, synchronously, in the presence of the professors...» E01.

«...designing and organizing exams well so that students can answer; however, now returning to in-person classes to perform practices and demonstrate what was learned...» E11.

«...establishing an anti-plagiarism system for exams, because this way students will focus on understanding, staying attentive, and demonstrating their knowledge of the topic studied rather than cheating...» E12.

## **DISCUSSION**

The participants in the study emphasize that virtual evaluation in the teaching-learning process has advantages, such as verifying the learning outcomes achieved by students, though not in an ideal way, and continuing their training process despite the restrictions imposed on educational institutions. Nevertheless, they also pointed out several shortcomings, such as the dishonesty of students during virtual exams and insufficient acquisition and verification of competencies, which do not fully ensure the achievement of learning objectives.

These findings align with those reported by Suárez et al. (2021) and Soto et al. (2022), who demonstrated that due to COVID-19, teachers had to redesign the assessment methodology in the teaching-learning process. The advantages of virtual education included the use of information and communication technologies (ICT), which allowed students to continue their training as future nurses from their homes. However, one of the drawbacks noted was the lack of authenticity in evaluations, as students could access online resources, change their responses, and take exams in networks. Likewise, Arribalzaga and Jacovella (2022) found that, because of the pandemic, educators developed new teaching tools to assess future healthcare professionals, but they faced challenges, such as limited patient interaction, which hindered the selection of actions in complex scenarios.

Coincidentally, Hidalgo et al. (2021) reported that technology contributed to obtaining a positive average in student assessment, which was mainly conducted through ICT. A major challenge was the adjustment of teachers to implement technological and pedagogical skills that would spark interest and motivation in student learning and teaching, enabling proper development of online assessments. Virtuality presented several advantages in the development of these assessments, which facilitated the achievement of a favorable final grade, as they were conducted on various virtual platforms, enhancing comprehension of the topics covered in educational sessions.

However, some students received an unfavorable grade, attributing it to one of the most common causes in virtual learning: poor network connectivity (Salas, Jiménez & Alvarado, 2021).

Similarly, Korniienko and Barchi (2020) described that the use of ICT in a virtual environment is vital to obtaining significant grades, aimed at improving each student's creativity. This opens a space in digital technology with 3D visualization, allowing virtual manipulation of simulated bodies, stimulating curiosity, and leading students playfully to seek creative solutions. Consequently, students will feel satisfied, increasing their motivation to acquire new knowledge.

Most interviewed students revealed that teachers used various tools to evaluate theoretical and practical aspects, mainly online quizzes, rubrics for oral evaluations, and checklists to assess the procedures required in video recordings. These results align with findings reported by Castillo et al. (2020), who indicated that the most used tools in virtual assessments to measure student learning were timed quizzes, concept maps to evaluate the hierarchical organization of concepts, oral presentations where teachers asked brief questions to verify the provided information, and asynchronous evaluation through video creation to foster deeper learning. Similarly, Grande et al. (2021) proposed the development of different exams for students, supervised by teachers through virtual platforms, with Zoom, Moodle, and Google Meet being the most commonly used; verbal evaluations, and providing materials in different formats, such as video recordings, to avoid student burnout and discomfort.

These findings align with those of Grande et al. (2021), who reported that due to COVID-19, there was a need to meet the teaching-learning process requirements of the students through the adoption of comprehensive measures for online evaluation. This included creating various assessments supervised by teachers, allowing adjustment to the psychosocial context. Additionally, anti-plagiarism tools were used to prevent fraudulent practices, such as copying in exams and assignments. Similarly, Castillo et al. (2020) noted that teachers used online quizzes with strict supervision to avoid plagiarism among students.

## **CONCLUSION**

The evaluation of virtual teaching during the COVID-19 pandemic allowed nursing students to assess the learning acquired in a fully online educational context. This modality offered advantages such as continuity of the educational process and partial verification of learning. However, significant limitations were identified, including low reliability of online assessments and insufficient support for the development and verification of practical skills, which were more effectively achieved through face-to-face education. Theoretical learning was evaluated through exams and oral interventions, while practical components were assessed using workshops, clinical cases, and video demonstrations. Virtual assessments had an unequal impact on academic performance, with some students achieving high results and others experiencing difficulties, potentially affecting graduation profiles and the quality of professional training. The process required both students and teachers to adapt quickly to virtuality, modify evaluation techniques and instruments, and use diverse technological tools to ensure more objective, credible, and reliable assessment of theoretical-practical competencies in nursing education.

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### **Declaración de conflicto de interés:**

Los autores no tememos conflicto de interés

### **Contribución de los autores**

Jean Anderson Milian-Abad: Conceptualización, Administración de proyecto

Flor de María Mogollón-Torres: Curación de datos, Análisis formal.

Rosa Jeuna Díaz-Manchay: Investigación, Metodología,

Maribel Albertina Diaz Vásquez: Administración de proyecto, Recursos.

Luisa Fernanda Acuña-Beltran: Software, Supervisión,

Fiorela Anaí Fernández Otoya: Validación, Visualización, Escritura – borrador original,

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