

Virtual Platforms under University Teaching During the COVID-19 Pandemic in Peru: Perception of University Students.

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Abstract

The COVID-19 pandemic, at a global level, has brought serious consequences to people's health, but it has also meant a challenge for the development of teaching activities under the context of social isolation; it is necessary to know how this adaptation has been from the students' perception, in order to facilitate decision making and the management of improvements in the teaching process in virtual platforms. Objective: To identify the perception of university students regarding virtual platforms. Methods: In an exploratory-descriptive study, a Google Forms questionnaire was applied to 395 students of a Peruvian university on the perception of education on virtual platforms. Results: The questionnaire showed 57% positive student satisfaction with the virtual service. Conclusion: Students perceive as positive the adaptations of education in times of pandemic COVID -19.

Keywords

Perception, teaching, students, virtual platforms, pandemic COVID-19

1. Introduction

The new disease caused by the SARS CoV-2 coronavirus appeared in December 2019 in China [1] and spread rapidly globally, forcing the World Health Organization to declare a pandemic in March 2020 [2]; since then, activities with large crowds of people have changed, including classes in schools and universities.

The COVID 19 pandemic has meant great human losses, the collapse of health systems globally, and various changes due to measures adopted to contain the massive contagion of people globally, one of the first measures being the mandatory social confinement that included the closure of schools and universities.

The closure of universities meant a serious challenge in education since in a short period it was necessary to move from face-to-face classes to purely virtual classes [3] and in this adaptation, there were a series of changes [4], [5] that is important to know from the perception of the university students themselves a year and a half after they opted for this virtual teaching modality.

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The objective of this study was to identify the perception of students at a Peruvian university regarding education through virtual platforms after a year and a half under this modality.

The study was approved by the Research Ethics Committee of the Universidad Católica de Santa María. The students participated voluntarily, with prior informed consent.

2. Methods

2.1. Study Design and Participants

Descriptive observational study. A total of 395 students from a private university in Arequipa, Peru, were selected through judgmental sampling.

2.2. Procedures

Structured questionnaires, elaborated with Google forms, were applied to learn about the students' perception of the virtual platforms used for the teaching process in the context of the COVID-19 pandemic and mandatory social isolation in Peru. The variables studied were the appearance of the virtual service, platforms suitable for the service, perception of ease of access to virtual platforms, updating of virtual platforms.

2.3. Data Analysis

After having collected all the responses, we continued with the cleaning of the data set and the review of inconsistencies using Microsoft Excel 2019 software. Finally, to understand the responses given by these students, descriptive statistics were applied to construct tables and graphs showing the proportions of perception of improvement on some aspects of the virtual platforms used, the university's help for better virtual teaching, and the improvement of platforms for virtual teaching. Tables were also constructed to summarize the perception of the respondents on various aspects of the virtual platforms and the help they received at the time of filling out the questionnaire.

3. Results

Three hundred and ninety-five students from a Peruvian university, enrolled between March 2020 and August 2021, participated. Of the total sample (395 students), 57.2% are female, 42.0% are male, while 0.8% are other; 84.8% are between 17 and 24 years old; 40.5% are in the middle socioeconomic level; 52.7% take their classes from the Arequipa region and 47.3% from other regions (Table 1).

Table 1
Sociodemographic characteristics

Sociodemographic characteristics	n = 395	%
Gender		
Female	226	57.2%
Male	166	42.0%
Other	3	0.8%
Age		
17-18	57	14.4%
19-20	112	28.4%
21-22	109	27.6%

23-24	57	14.4%
25+	60	15.2%
Socioeconomic level		
A	62	15.7%
B	123	31.1%
C	160	40.5%
D	40	10.1%
E	10	2.5%
Region from where they carry out their virtual classes		
Arequipa	208	52.7%
La Libertad	51	12.9%
Lima	28	7.1%
Puno	28	7.1%
Tacna	18	4.6%
Others	62	15.7%

Table 2 summarizes the results obtained after applying the corresponding questionnaire to the students in the sample. Considering the trends of the answers given for each of the questions, it is observed that: the majority think that the appearance of the virtual service is good (52.7%) and 50.1% perceive that the suitability of the educational platforms for the service is good. In addition, more than half of the students responded that the ease of access to the platforms for virtual classes is good. Finally, the percentage of students who say that the updating of the platforms for virtual classes was good is 50.4%. It should be noted that in none of the questions does the response "deficient" exceed 5% of the total.

Table 2
Results of the questionnaire

Questions and Answers	n = 395	%
Appearance of the service		
Deficient	19	4.8%
Fair	119	30.1%
Good	208	52.7%
Excellent	49	12.4%
Educational platforms suitable for the service		
Deficient	12	3.0%
Fair	110	27.8%
Good	198	50.1%
Excellent	75	19.0%
The platforms for the virtual classes are easily accessible		
Deficient	10	2.5%
Fair	73	18.5%
Good	210	53.2%
Excellent	102	25.8%

Platforms for virtual classes are up to date.		
Deficient	10	2.5%
Fair	108	27.3%
Good	199	50.4%
Excellent	78	19.7%

On the other hand, the students were asked whether they perceived improvements in various aspects related to the virtual platforms three months after the beginning of the pandemic. Thirty-seven percent of the students surveyed thought that the appearance of the virtual service had positively improved. Regarding the perception of the suitability of the platforms for the educational service, only 29% of the respondents believe that there were improvements. In addition, 28% of these students perceive that there were improvements in the accessibility of the platforms for virtual classes. Finally, 41% think that there were improvements in the updates of the platforms for virtual classes (Figure 1).

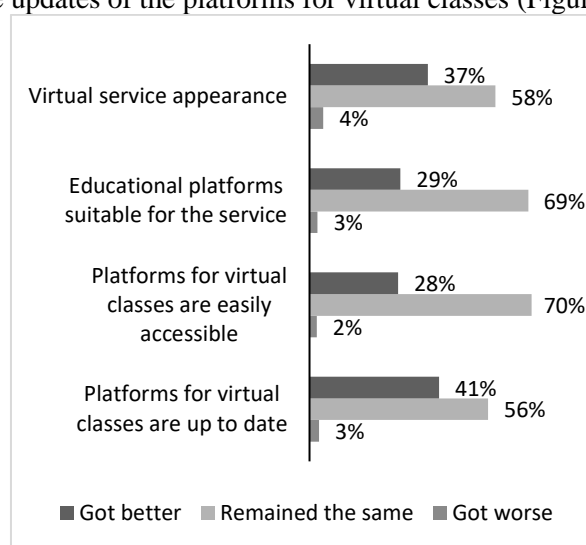


Figure 1: Perception of improvement of virtual platforms used by a university.

Table 3 summarizes the answers obtained to the questions related to the help provided by a university to students for better virtual teaching. The data show that: 45.6% of the respondents think that the help for virtual enrollment is good, and the same is true for those who perceive that the help for training in the management of virtual platforms is good. In addition, 38% of these students responded that help with educational problems related to connectivity is good. Finally, the percentage of students who said that the help with educational problems related to virtual exams was good was 39.5%. In contrast, it should be noted that those students whose perception of the different assistance provided by the university is deficient do not exceed 17% of the total.

Table 3
Results of the questionnaire

Questions and Answers	n = 395	%
Help for virtual enrollment		
Deficient	28	7.1%
Fair	134	33.9%
Good	180	45.6%
Excellent	53	13.4%
Help to be trained in the use of virtual platforms		

Deficient	28	7.1%
Fair	134	33.9%
Good	180	45.6%
Excellent	53	13.4%
Help with educational problems related to connectivity		
Deficient	67	17.0%
Fair	150	38.0%
Good	129	32.7%
Excellent	49	12.4%
Help with educational problems related to virtual exams		
Deficient	57	14.4%
Fair	156	39.5%
Good	135	34.2%
Excellent	47	11.9%

Students were also asked about whether there were improvements in the help they received from the university in order to achieve better virtual teaching, three semesters after the pandemic began. Of those surveyed, 25% felt that there was an improvement in the help received to enroll virtually, and 29% felt that there was an improvement in the help received to become trained in the use of virtual platforms. Similarly, the perception of help received with educational problems related to connectivity and virtual exams was improved for 22% and 25% of respondents, respectively (Figure 2).

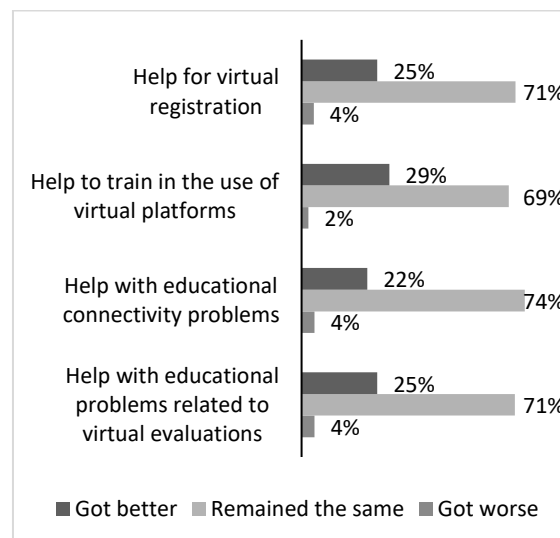


Figure 2: Perception about the improvement of the help that a university provides to students for a better virtual teaching.

In general, 57% of the students surveyed agreed with the statement that the virtual teaching platforms have improved, and 13% agreed. These percentages coincide when the consultation is made particularly concerning the teaching of virtual theoretical classes. However, there is less acceptance regarding the teaching of virtual internships: 39% agree with the statement that the platforms for teaching virtual internships have improved, while 8% agree (Figure 3).

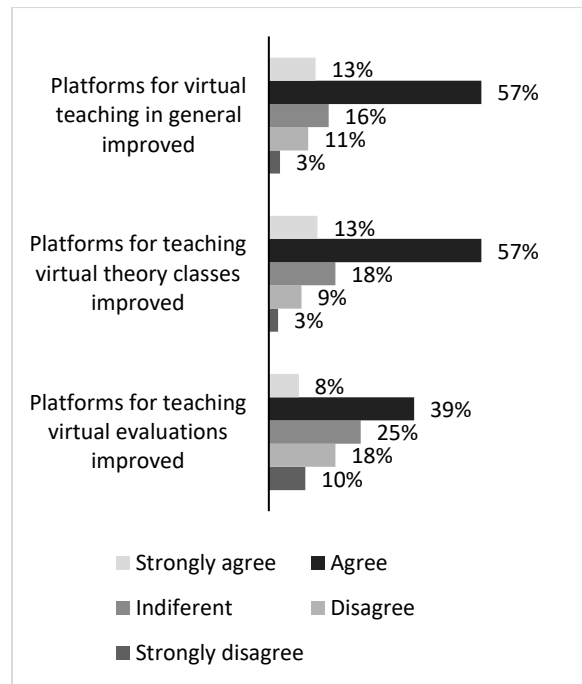


Figure 3: Perception regarding the improvement of platforms for virtual teaching.

4. Discussion

Since March 2020, the new disease COVID-19, brought with it illness and death, the collapse of health services, global containment measures to avoid massive contagions and restrictions to our daily life; which included mandatory quarantine, which was later modified as mandatory social isolation measures according to the level of risk.

In Peru, within the measures adopted by the government, the suspension of face-to-face university teaching and the immediate adaptation to virtual teaching was included; this would be a measure that impacted academic life to this day. This change implied several adaptations and challenges [4], both for universities and for the families of students and university teachers, who had to adapt their homes with Information and Communication Technology resources also immediately, to start the teaching-learning process. In this study, we analyze some characteristics of these changes in university teaching with the use of digital platforms, from the perception of the students of a private university in Peru.

Self-administered questionnaires were taken from 395 students enrolled from the beginning of the pandemic to the present in a private Peruvian university, 57.2% were women, young people between 17 and 24 years old, their socioeconomic level was medium in 40.5% and there were 52.7% who stated that they took their classes in the Arequipa Region where the university is located, but there was an important 47.3% who took their classes in other regions, a finding that means that the university has students who migrate internally within the country in search of university education.

In Colombia, a study was conducted in 2020, in which 91 university students were interviewed, with similar socio-demographic characteristics in terms of so, in that study 59.3% were young women between 18 and 27 in 87.9%. [6]. The article highlights that their ages correspond to the Millennial generation, which means that for these young people a transition from face-to-face to virtual classes concerning the use of ICT is easier than for teachers themselves [6].

In the study, it was found that students' perceptions of the appearance of the virtual service are good (52.7%) and 50.1% also perceive that the suitability of the educational platforms for the service is good; it is worth mentioning that the university studied had Teams among its teaching platforms and then, at the beginning of virtual teaching, the Blackboard platform was also acquired.

The students interviewed perceived as good the updating of the platforms for virtual classes was 50.4%. It should be noted that, in none of the questions, the response "deficient" exceeded 5% of the total, which shows a general satisfaction concerning the virtual platforms used for university teaching under the scenario of the COVID-19 pandemic, at least as far as students are concerned, since other studies

reveal that there were serious difficulties in the use of ICTs, which forced the development of training in the use of ICTs, for the use of institutional platforms; Thus, in a study developed with 383 university professors of the Universidad Nacional Autónoma de México, it was found that the professors had various problems, among which the logistical ones were found in 43.3%, technological problems in 39.7%, as well as pedagogical problems in 35.2%, among others [8].

Fifty-seven percent of the students surveyed perceived that in a year and a half that they have been taking virtual classes, the virtual teaching platforms have improved, and 13% were in total agreement; this result is positive, as it denotes an effort by the institutions to achieve a digital transformation with the adoption of distance learning technologies, despite the technological and economic gaps.

There is evidence that, in virtual university teaching, during this pandemic, several ICTs have been used, such as the Zoom platform [9], Microsoft Teams [10], Google Meet [11], Blackboard [12], and Google Classroom [13] mainly. On the other hand, virtual classes were taught in two modalities: live "synchronous classes" and recorded material or material prepared in advance "asynchronous classes" [14].

Regarding asynchronous classes, it is a modality that requires constancy, persistence, and commitment of students to review the material shared by teachers and in this pandemic university, students showed acceptance of this type of class [15], being considered as a collaborative tool, which allows firstly, that the teacher can control the quality of the video without interference, noise, etc. On the other hand, this allows students flexibility in the schedule, being the student who assumes the responsibility of studying the recorded video and educational material at the most appropriate time [16].

The student can review the videos of both synchronous and asynchronous classes, if the teachers share these videos in time, facilitating that their students can review them, pause them to take notes, among others, that do not occur in the face-to-face modality [17].

The study explores the perceptions of students regarding the help they received from the university in order to achieve better virtual teaching, three semesters after the beginning of the pandemic, 25% considered that the help received to enroll virtually improved, and 29%, to be trained in the management of virtual platforms. In Spain, an analysis was made of the difficulties presented in virtual teaching in this pandemic, such as: "gap in access, electronic devices and/or Internet connection, gap in Internet quality, the gap in digital competencies for educational purposes of teachers and students and the ability to create teaching and evaluation content through these platforms" [18].

In this regard, this pandemic has revealed the great inequalities and gaps in computer access for both teachers and students, with the most frequent disparities being related to the quality of the Internet, access to technological devices, among others [19].

In Latin America and Peru, the social and economic situation of many university students has been determinant for their quality of participation in virtual classes. Before the pandemic, many families did not have good access to the Internet and much less with devices such as computers, laptops, or cell phones for all family members, therefore, in the context of the pandemic, all technological resources were insufficient, since overnight, schools, universities and many jobs were closed, so that in the same family, there could be parents with telework, university students studying remotely and kindergarten, primary or secondary school students doing virtual classes; a situation that was unsustainable for a household with few economic resources. These situations should be taken into account by university teachers since students could be going through this type of situation to detriment of their participation in virtual classrooms, etc [20], [21].

The perception of the help received in the face of educational problems related to virtual exams was also consulted, with an improvement of 25%. In this regard, there is evidence that one of the main challenges of virtual teaching has been the issue of virtual evaluations, especially in internships. Vega Ponte notes that one of the main difficulties detected during the transition from face-to-face classes to a remote modality in the context of the Covid-19 pandemic was virtual evaluations, proposing some recommendations to improve these problems such as "the acquisition or development of software for simulation of practices, among others, in addition to the development of a "hybrid" education model taking the advantages of face-to-face and non-face modalities, oriented towards education in the future" [18]. On the other hand, Irala, Valesca Brasil, analyzes useful capabilities to face this pandemic and virtual teaching, such as perceived self-efficacy and students' expectations, for which she conducted a study with 135 students, finding that the indicators of expectations showed greater differences than self-efficacy throughout the semester" [22].

At the present juncture, university teachers should engage in a sincere dialogue with their students, to know the context around which they carry out their virtual studies and identify their vulnerabilities, especially in the evaluation process.

An evaluation with different qualities of technological support and internet signal could exacerbate the inequalities of evaluation among students; thus among the problems reported in these months of virtual teaching are observed: "I had bad signal, at the time of giving the exam", "the page crashed and I could not follow the exam", "my exam opened slower than my classmates", the exam was closed and I could not upload my answers due to bad signal", "I had no internet", etc. In short, each of these situations could lead to undesired results in the evaluations, and a bad grade would not reflect the low achievement of academic competencies, but rather technological inequities and gaps in the internet systems.

Throughout the study it was evidenced that students perceive that virtual teaching has been improved, however, there are many challenges to be faced such as virtual evaluation and mainly practical exams; however, there are other factors that should be studied in this new context, which will be very useful for changes in the paradigm of the teaching-learning process in the future, and to manage teaching in new normal or pandemic scenarios.

In this regard, studies have been published that analyze other problems related to virtual teaching, in addition to the institutional technology gaps or in the students' homes, such as a perception of little interest due to the lack of personal contact [23], in addition to problems in the evaluations, student commitment to submit evaluations [24], among several other problems.

Universities before the pandemic did not have much experience in facing an online evaluation for all their students, even more so in careers with a large number of students such as medicine for example, so in this pandemic, teachers and institutions had to improvise in accelerated times and seek "methodological and technological solutions, while ensuring fairness, legal certainty and transparency for all stakeholders, internal and external" [25]. A proposed solution to manage the technical problems presented in a final or academic phase exam is the continuous evaluation, in which the teacher knows the permanent performance of his students and the progressive acquisition of competences, which could help to qualify the complete performance of the students, dispensing with the final exam if someone presents some connectivity or technological problem at the time of the final exam. It is worth mentioning that, in addition to the fine knowledge that university teachers should have of their students, they should identify those students with special abilities that require adaptations in their evaluations.

In this regard, UNESCO proposes flexible assessment methods to ensure the inclusion of students with special educational needs [26]. UNESCO also proposed ten recommendations to ensure continuity of learning in this pandemic, which we can apply to both school and university teaching: during this pandemic and virtual teaching: "1. examine the state of preparedness and choose the most relevant tools, 2. ensure the inclusiveness of distance learning programs, 3. protect the privacy and data security, 4. apply solutions to psychosocial problems before teaching, 5. plan the development of distance learning programs, 6. provide teachers and learners with assistance in the development of distance learning programs, 7. provide teachers and learners with assistance in the development of distance learning programs, 8. provide teachers and learners with the necessary tools for the development of distance learning programs, 9. provide teachers and learners with assistance in the development of distance learning programs, and 10. plan the development of distance learning programs, 6. provide teachers and learners with assistance in the use of digital tools, 7. combine appropriate approaches and limit the number of applications and platforms, 8. set the rules for distance learning and monitor the learning process of learners, 9. define the duration of distance learning units according to the self-regulation skills of learners, and 10. create communities and promote social links" [26].

On the other hand, the present study has also revealed positive data, since students have expressed perceptions of improvements in virtual teaching, which will be a valid teaching strategy in the future in some fields of university knowledge. In this regard, we agree with the conclusions of universities in Germany, which have assessed the current situation of the use of technologies for teaching, with good results in the efforts deployed for adaptations to a digital format with good reception of lectures and seminars for their flexibility for study, which has led many teachers to express their desire to continue using the materials developed in face-to-face classes shortly [27].

In the results of the study, it can be observed that 25% of the students observed progressive improvements in virtual teaching, a finding that means that there are still great challenges to be met, to make this teaching a model to be followed in the future health emergencies.

There is evidence in several studies that e-learning has meant a negative experience for students, leading to think that there has been a lack of quality standards to homogenize the form, preparation, dissemination, and evaluation of the content. This reality, for example, was reflected in the results of a qualitative descriptive study conducted at Sabzevar University of Medical Sciences in Iran, where fifty-two students were interviewed about their perception of e-learning and the results revealed that students were dissatisfied with e-learning; among the main reasons, they named "dissatisfaction with the contents uploaded by the teachers themselves, lack of feedback, problems of the communication channel such as the platforms used, and the lack of preparation of the students themselves for this type of virtual teaching; likewise, the students interviewed gave solutions to improve this type of teaching, the main proposals being: "the possibility of receiving feedback, improvement of the channel and strengthening of the educational content" [28]. It is necessary that, based on these examples, university systems undertake the training not only to improve teachers' skills for the proper management of platforms but also to achieve educational content with good quality standards, being this experience of the pandemic an opportunity [29] to learn and improve [30]. This time of confinement, social isolation, and unprecedented virtual teaching due to the prolonged time and the massive number of students under this teaching modality, should leave us with lessons learned to be valued in order to improve both virtual and face-to-face teaching.

The pandemic has brought with it disease, pain, death, poverty, significant changes in the economy, education, work, and social life of people globally; these sudden changes have caused adaptations in record time, but also the installation of serious problems to the mental health of people, being the students of colleges and universities mostly affected by stress [31], [32], anxiety [33], [34] and depression [35] and it is a duty of university systems, not to be stressors for these young people, but on the contrary, to be model universities that offer the vital support to contain them in times of crisis and provide them with security, tranquility, educational quality in its different modalities and stability for the adequate development of their university preparation.

Young people have had to witness this pandemic, the contagion, and even the death of their family and friends and without time for mourning and respective recovery they have had to endure these difficult moments and continue with their virtual studies, development of tasks, and evaluations. It is necessary, therefore, that this new view of an integral, quality, efficient, and humanized virtual education takes into account the family context, the physical and mental health of the student, as well as the social, cultural, and economic aspects of these and their families.

Finally, it should be noted that in Peru and the world, since March 2020, it has meant a period of changes in the technological infrastructure of universities, as well as resources in the homes of university teachers, administrative staff, and students, unprecedented and all under the same goal, to continue with university education despite living in the pandemic. These are great lessons learned during this time of emergency that we must value.

5. Conclusion

The COVID-19 pandemic has caused an unprecedented interruption in face-to-face medical education; however, bioethics teaching has faced challenges to provide valid solutions to these times. The Pandemic provides real scenarios for the analysis of real borderline cases allowing updating the contents of the course of bioethics in medicine, being the virtual environments friendly for the uninhibited participation of students, and application of participatory strategies.

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