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ORIGINAL

Distance education during the COVID-19 pandemic: experience at a public university

Educación a distancia durante la pandemia por COVID-19: experiencia en una universidad pública

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ABSTRACT

Objective: to evaluate the execution of distance education in the Accounting and Business Administration majors of a Public University, during the Covid-19 pandemic.
Methods: an investigation was carried out from the positivist paradigm, quantitative, field approach, observational design, descriptive level and cross section, in 23 teachers, the sample obtained by intentional non-probabilistic sampling that met the inclusion criteria.
Results: which showed that the contents met the proposed objectives, the established time and were updated. However, 57 % of the teachers reported that there was not high attendance in the virtual classes and the content of the subjects was not met. 100 % of those surveyed had a computer, 70 % had internet and good connectivity. The most used communication tool was the virtual classroom (61 %) and WhatsApp (5 %).
Conclusion: The distance educational process was appropriate to the teaching time, teacher-student communication and student participation. However, teachers reported differences in the use of teaching strategies, institutional resources and learning evaluation.

Keywords: Distance Education; Teaching Strategies; COVID-19; Information and Communication Technologies.

RESUMEN

Objetivo: evaluar la ejecución de la educación en la modalidad a distancia en las carreras de Contaduría y Administración Comercial de una UniversidadPública, durante la pandemia del Covid-19.
Métodos: se realizó una investigación desde el paradigma positivista, enfoque cuantitativo, de campo, diseño observacional, nivel descriptivo y corte transversal, en 23 docentes, la muestra obtenida por un muestreo no probabilístico tipo intencional que cumplieron con los criterios de inclusión.
Resultados: el cual arrojó que los contenidos cumplieron con los objetivos propuestos, el tiempo establecido y estaban actualizados. Sin embargo, 57 % de los docentes refirieron que no existió una alta asistencia a las clases virtuales y se incumplió con el contenido de las asignaturas. 100 % de los encuestados poseían un equipo computador, 70 % gozaban de internet y buena conectividad. La herramienta de comunicación más usada fue el aula virtual (61 %) y el whatsapp (5 %).
Conclusión: el proceso educativo a distancia estuvo adecuado al tiempo de enseñanza, comunicación docente-estudiante y participación estudiantil. Sin embargo, los docentes reportaron diferencias en el uso de las estrategias de enseñanza, recursos institucionales y evaluacion del aprendizaje.

Palabras clave: Educación a Distancia; Estrategias de Enseñanza; COVID-19; Tecnologías de la Información y Comunicación.

INTRODUCTION

In today´s societies, distance education arises as an alternative aimed at expanding education and reaching large human groups, particularly those who are currently unable to attend different educational centers permanently due to the COVID-19 pandemic, which demanded the support of Information and Communications Technology (ICT) to fulfill the educational process in higher education institutions.[1,2,3,4]

As a result, some authors noted that the integration of new technologies into the educational field has led to the creation of new didactic environments, such as E-learning, where the teaching-learning process occurs through computer networks to educate individuals who are geographically dispersed. These technologies also enable interaction between professors and students at different times, giving rise to virtual classrooms.[5,6,7]

In this regard, it is important to note that distance learning process allows for interaction between the professor and the student, which creates the possibility for self-learning and collaborative teaching through the use of various resources and means that can be sent through the Web. In this way, communication tools are developed and divided into two types: synchronous (such as chat, video conference, electronic whiteboards) and asynchronous (including e-mail, discussion forums, and others).[8,9,10,11]

When the pandemic was declared on March 11, 2020, the World Health Organization (WHO) and the organizations responsible for governing higher education systems in Latin America and the Caribbean announced the measures to be taken depending on the alerts established in each country, along with WHO recommendations to minimize the impact of COVID-19.[12,13,14,15]

Such a situation caused the United Nations to report that 89 % of the world's student population was affected by the closure of their institutions due to the COVID-19 crisis. For this reason, governments and associated organizations joined efforts to ensure the continuity of learning, as this crisis would have long-term consequences for education systems in terms of access, quality, equity, and management of education.[16,17,18]

The immediate action was to interrupt education. Medium and long-term actions should be carried out with a multi-risk and sustainability-oriented approach. As a result, in April 2020, the WHO provided health recommendations to prevent the spread of COVID-19 on university campuses. Additionally, they emphasized implementing strategies for the continuity of curricula through virtual campuses, media, or other digital environments, as well as rescheduling academic calendars at all educational levels.[19]

As a result, after the Venezuelan government declared a national state of emergency due to the COVID-19 virus on March 13, 2021, a series of political, health, and educational measures were activated. One example was the plan called "Universidad en casa." In this plan, the Ministry of Popular Power for Education (MPPEU) indicated that, among its actions, this measure allowed the incorporation of more than 19,500 students in the final years of Medicine and Nursing programs into hospital rotations nationwide and adopted the use of ICT to continue the academic process of Venezuelan university students.[17]

It's important to clarify that this educational approach, as noted by Pineda[4], already existed in the country since the 1990s. It was adopted by various universities worldwide, including Venezuelan universities such as the Central University of Venezuela, National Open University, Andrés Bello Catholic University, and University of Zulia. These institutions, in collaboration with the MPPEU, were required to develop a Distance Education Program. This initiative aimed to integrate ICT into education and improve access to university education for those who have historically been excluded by the social system.[20] The social quarantine measure was implemented, and higher education continued through the use of social networks, text messaging, phone messaging, and virtual classrooms. This educational approach is commonly referred to as E-learning. According to Belloch[21] it involves a learning process delivered through communication networks, with the goal of achieving learning objectives through computer-delivered content and activities. It's a digital platform specifically designed to replicate the classroom environment and conduct study activities without the need to travel to the campus. Thus, the working environment within E-learning platforms is also commonly known as virtual campus.[22]In this regard, Ruíz, Mendoza y Ferrer explain that distance learning process allows for interaction between the professor and the student, which creates the possibility for self-learning and collaborative teaching through the use of various resources and means that can be sent through the Web.[22]

It is important to note that the teaching and student communities of different universities have adopted educational methodologies supported by ICT to continue academic training during the pandemic. Flores, Meléndez, and Baptista conducted a study on distance education in Venezuelan universities during the COVID-19 pandemic. The study reveals that meeting the programmatic contents of different university courses has been challenging due to various factors, including Internet connectivity failure or absence, lack of smartphones, feedback on the instructional process, and insufficient training of teaching staff in educational technologies.[23]

Therefore, the purpose of this research is to evaluate the implementation of distance education in Accounting and Business Administration programs. The goal is to identify similarities or differences in various aspects mentioned by other researchers on the subject, such as Basilaia and Kvavadze,[24] and Mailizar, Maulina, and Bruce.[25] These studies suggest that online learning may be less effective than conventional learning due to a digital gap between educational institutions and their professors. Few educators use ICT for pedagogical

purposes and possess the knowledge to plan the learning process in virtual environments.

METHODS

A quantitative, field, observational, descriptive, and cross-sectional research was conducted based on the positivism paradigm. The population consisted of 76 professors of a public university located in the Aragua State, Venezuela. The sample, comprising 23 professors (30 % of the population), was selected using intentional, non-probabilistic sampling. These professors met the inclusion criteria, which included the willingness to participate in the research and involvement in distance education.

Data was collected from February to September 2023 through a questionnaire created with Google Forms. The respondents received an online link to the questionnaire via WhatsApp.

The authors' questionnaire underwent a pilot test, resulting in an internal consistency index of Kuder-Richardson (1936) of 0,80 (80 % acceptable). The questionnaire was divided into four parts. The first part consisted of the informed consent; the second part addressed the diagnosis of programmatic content during the COVID-19 pandemic (8 questions); the third part evaluated technological communication tools (21 questions); the last part measured the distance education process (16 questions). Both the third and fourth parts of the questionnaire allowed for measuring the level of compliance with programmatic processes, the use of technological communication tools (synchronous and asynchronous), and the distance education process. The questions were answered with either “YES” or “NO”.

The data was processed using Excel, tabulated, and analyzed by calculating percentages and using descriptive statistics.

RESULTS AND DISCUSSION

In regards to the level of compliance with the programmatic contents in the Accounting and Business Administration programs within the studied scope, it was found that 100 % of respondents answered affirmatively to the following items: the programmatic contents correspond to the proposed objectives, the assignments requested are consistent with the topic and objectives of the class sessions, the contents are organized in modules with a logical sequence, and were written in a clear and understandable language for the students. (table 1)

On the other hand, 70 % of respondents agreed that the programmatic contents were practical and up-to-date, while only 30 % disagreed. Regarding the item about whether the allocation of program time met the established requirements, 78 % of the sample responded affirmatively, while the remaining participants disagreed.

Similarly, 91 % of respondents answered affirmatively when asked if the content is related to students' prior experience, with the aim of rising and maintaining their interest. In contrast, 57 % of respondents reported low attendance in virtual classes and that the subjects were not being covered according to the schedule. The remaining 43 % reported the opposite. (table 1)

Table 1. Programmatic content

No. of items	Dimension Programmatic content	Answers			
		Yes		No	
		f	%	f	%
1.	The programmatic contents align with the proposed objectives.	23	100	0	0
2.	The requested assignments or tasks align with the topic and session objectives.	23	100	0	0
3.	The content has practical characteristics and is up to date.	16	70	7	30
4.	The timing of the programs has been adjusted to meet the established requirements.	18	78	5	22
5.	The contents are organized into modules with a logical sequence.	23	100	0	0
6.	The contents are related to students' prior experience, with the aim of rising and maintaining their interest.	21	91	2	9
7.	The language used is clear and comprehensible for students.	23	100	0	0
8.	The attendance rate for virtual classes is generally high, and the course content is scheduled as planned.	10	43	13	57

100 % of respondents confirmed having technological communication tools available at their homes for distance education. The equipment used in 70 % of cases was a computer, followed by smartphones (26 %) and

tablets (4 %). Similarly, 65 % of respondents reported that all members of their family used this technological equipment, which had Internet access in 100 % of cases. Additionally, 52 % of respondents reported having good-quality connectivity, while 48 % reported poor connectivity. On the other hand, 96 % of respondents confirmed that they establish a virtual connection with students on a weekly basis.

91 % of respondents reported prior knowledge and experience with ICT. 83 % of respondents reported receiving training in Virtual Learning Environments (VLEs), and 87 % of them indicated using technological communication tools to motivate student learning.

All respondents agreed that they had to take refresher courses on the management and use of VLEs during the Covid-19 pandemic. (table 2)

However, it is worth noting that all participants in the study reported using various technological communication tools. Synchronous tools such as WhatsApp (56 %), video conferences or video calls (40 %), and email (4 %) were commonly used. Asynchronous tools, including virtual classrooms (61 %), virtual platforms (26 %), and social media (13 %), were also used. (table 2)

Table 2. Technological communication tools

No. of items	Dimension Technological communication tools	Answers			
		Yes		No	
		f	%	f	%
9.	Do you have a computer, smartphone, tablet, or other technology device at home that enables you to perform your duties as a professor? If you answer "Yes", please specify which device.	23	100	0	0
10.	The technological device is used by all members of the family.	15	65	8	35
11.	Do you have Internet access?	23	100	0	0
12.	Is your phone and Internet connectivity of good quality?	12	52	11	48
13.	What communication tool do you use to communicate with your students in real-time? Calls, text messaging, video calls/video conferences, WhatsApp or Telegram messages.	23	100	0	0
14.	What communication tool do you use to communicate with your students in non-real time? Virtual platforms, virtual classrooms, social networks, online discussion forums, email, blogs, or websites.	23	100	0	0
15.	Do you have any prior knowledge of using and handling ICT?	21	91	2	9
16.	Have you ever participated in training activities of VLEs?	19	83	4	17
17.	Is it necessary for all professors to undergo training courses in the management and use of VLEs as a result of this pandemic?	23	100	0	0
18.	Can technological tools motivate student learning?	20	87	3	13
19.	Do you communicate with your students virtually? How many times? Weekly, biweekly, or monthly? ___	22	96	1	4

Concerning distant learning educational process for the Accounting and Business Administration programs in the studied scope, it was observed that all professors responded "Yes" to items assessing the time allocated for teaching and the interaction between the professor and the student. This includes the duration of the virtual class session (45 to 90 minutes), the importance of effective communication between the professor and the student, as well as the availability of opportunities for student participation. (table 3)

On the other hand, in items examining pedagogical aspects such as institutional resources, learning activities, learning assessment, instructional strategies, and graduate profile, 87 % reported asking questions at the beginning and during the class to determine student familiarity with the topic and to encourage student participation. Only 13 % of respondents indicated that they do not ask this type of questions. Similarly, 91 % of respondents reported using graphic organizers and illustrations in their presentations, while the remaining 9 % did not. (table 3)

All respondents confirmed using various instructional strategies to promote student autonomy, and acknowledged that the quality of the educational process improves when the professor has a strong command of the subject matter. 65 % of respondents reported having alternative means available for publishing content in case of connectivity issues, while 35 % do not have access to such means. 74 % of respondents indicated that they use institutional resources to facilitate student learning.

Regarding learning assessment, it was found that 96 % of instructors review the content learned at the end

of the lesson by asking questions to the students, among others. Additionally, 87 % stated that they request assignments or tasks during each session to assess students. Furthermore, 91 % of respondents require the creation of diagrams, presentations, or summaries to demonstrate their knowledge of the course content or related readings. (table 3)

Table 3. Distance learning education process

No. of items	Dimension Distance learning education process	Answers			
		Yes		No	
		f	%	f	%
20.	Is the duration of your virtual class session between 45 and 90 minutes?	23	100	0	0
21.	Effective communication exists between the professor and student.	23	100	0	0
22.	Are there opportunities to participate in the virtual class?	23	100	0	0
23.	Use strategies to catch students' attention and keep them motivated.	23	100	0	0
24.	Ask questions at the beginning and during the class to determine student familiarity with the topic.	20	87	3	13
25.	Use graphic organizers and illustrations in your presentations for a better understanding of the topic.	21	91	2	9
26.	At the end of each class session,you conduct a review by asking students questions about the material learned.	22	96	1	4
27.	Always request assignments or tasks (individual or group) in each session to assess students.	20	87	3	13
28.	Require the creation of diagrams, presentations, or summaries to demonstrate their knowledge of the course content.	21	91	2	9
29.	If there are issues with connectivity, there are alternative methods available to publish content.	15	65	8	35
30.	Do you administer written tests or online quizzes to assess student learning?	20	87	3	13

During this research, it was observed that the content coverage aligned with the proposed objectives. The contents were organized into modules and updated within the established timeframe. They were written a in clear and understandable language for the students. However, over half of respondents reported low attendance in virtual classes and non-compliance with the scheduling of subject content. This situation may be attributed to the challenges faced by distance education during the pandemic.

Concerning knowledge and use of technological communication tools, it was observed that all respondents have access to technology equipment in their homes. All family members use these devices to access the Internet with good connectivity. Hence, it is proposed that the proper and optimized use of these tools will aid in achieving significant learning and greater student engagement in virtual class sessions.[26,27,28,29,30]

Additionally, the results indicate that professors possess prior knowledge in the use and management of ICT, as well as training in VLEs. They agreed that they use technological communication tools, which can motivate student learning.[31,32,33] As a result of the COVID-19 pandemic, it has become necessary to update courses in the VLEs. This update is expected to enhance teaching quality and academic standards at our university.

On the other hand, the findings regarding the distant learning educational process led us to conclude that it is appropriately fulfilled in terms of the time allocated to teaching, the presence of effective communication between the professor and the student, and the provision of equal opportunities for student participation. However, when evaluating instructional strategies, use of institutional resources, and application of learning assessment tools, differences of opinion among professors were observed.[34,35,36]

It is important to note that instructional strategies are designed to address issues in educational practice. They require a flexible planning process aimed at achieving their goals. The strategies use will depend on the objectives, program content, available resources, professor competencies, and the competencies or skills to be developed in the student. Thus, the professor should develop and use instructional materials that facilitate providing information, motivating and directing student learning, evaluating their knowledge or skills, and providing virtual environments for communication. This could explain the variations in the reported use of instructional strategies and learning assessment by the professors.

In this context, it is worth mentioning that distance education supported by ICT enables virtuality and information interaction, as well as the generation, transmission, and construction of knowledge. Therefore, it is crucial to carefully plan and develop educational programs. Educational institutions should have access to financial, technological, and legal resources. Additionally, they should have pedagogically trained and capable

human resources to design and execute the educational process effectively.

RECOMMENDATIONS

The recommendations below are based on the responses of the sample studied:

1. To ensure students are familiarized with online learning, it is crucial to provide an introductory course that explains the system's operation and navigation during the course. This will contribute to increase student attendance in virtual classes and ensure compliance with the course content schedule.
2. During virtual interactions, it is suggested to divide the group of students into smaller groups to conduct shorter sessions with each one, thus achieving effective fulfillment of the set objectives.
3. It is recommended to constantly motivate active student participation during virtual sessions.
4. As 35 % of respondents reported the lack of alternative means for content publication in cases of connectivity issues, it is imperative to enhance institutional support in this regard.
5. Establishing an optimal virtual connection schedule is crucial to meet the needs of students and facilitate their active participation in classes.
6. It is recommended to encourage professors to attend training courses focused on managing and using VLEs. This will enhance their effectiveness in online teaching.
7. Providing emotional support to students is crucial to ensure the effectiveness of the learning process. The COVID-19 pandemic significant psychological impact was noticed, manifested by depressive symptoms, anxiety, and stress in the student population. Consequently, it's crucial to provide support and resources to assist students in dealing with these emotional challenges.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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