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Artículos científicos

Percepción de estudiantes universitarios acerca de la calidad de la educación virtual recibida durante la pandemia del covid-19

Perceptions of university students about the quality of online education caused by the pandemic covid-19

Percepção de universitários sobre a qualidade do ensino virtual recebido durante a pandemia de covid-19

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Resumen

La pandemia originada por el virus covid-19 generó cambios en todos los ámbitos de la vida cotidiana, incluyendo a las actividades educativas. El tránsito de clases presenciales a virtuales se realizó en forma emergente para intentar cumplir con los programas escolares, pero en ese trayecto no se consideraron los aspectos cualitativos que deben tener los estudiantes para acceder a una educación de calidad. La Universidad Michoacana de San Nicolás de Hidalgo, ubicada en México, suspendió las clases presenciales en marzo del 2020, por lo que se pasó a una educación virtual hasta enero del 2022. Por tanto, el objetivo de esta investigación fue identificar las percepciones de los universitarios de la referida casa de estudios sobre la calidad de la educación virtual que se tuvo que implementar debido a la pandemia. Los sujetos de la investigación fueron los estudiantes inscritos en la Facultad de Contaduría y Ciencias Administrativas de la Universidad Michoacana de San Nicolás de Hidalgo, con un universo total de 3483 estudiantes. Se aplicaron 1625 cuestionarios vía electrónica durante mayo y junio de 2021. Los resultados mostraron que 66.5 % de los estudiantes percibieron una muy baja o baja calidad en la educación recibida durante la pandemia. De hecho, los estudiantes que se identificaron como miembros de comunidades indígenas percibieron en mayor proporción esta realidad, con 20.9 % por encima de la media, que fue de 16.8 %, así como quienes menos percibieron como buena o muy buena la calidad de la educación con 7.8 %, por debajo de la media que fue de 9.3 %. Esto pudo estar influenciado por el dispositivo usado y la calidad del internet con el que accedieron a clases los miembros de la comunidades indígenas, ya que 38.9 % de quienes emplearon el teléfono celular para las clases manifestaron tener una muy mala o mala conexión a internet, por arriba de la media que fue de 31.6 %. Por otra parte, el cuidado de los niños o adultos mayores no fue un factor que impactara en la percepción de la calidad de la educación. Además, el dispositivo con el que acceden a clases y la calidad del internet con que cuentan son factores relevantes, ligados con los recursos económicos de los estudiantes y la ubicación geográfica de su vivienda. Por tanto, la UMSNH debe considerar las condiciones físicas en que los estudiantes reciben sus clases en forma electrónica, así como alternativas para revertir la calidad de la educación en el periodo de la pandemia.

Palabras clave: calidad de la educación, estudiantes universitarios, pandemia covid-19, educación virtual, México.

Abstract

The global pandemic caused by the novel coronavirus COVID-19 has caused many changes in many areas of everyday life, including education and schooling. The transition from traditional education to online education happened very quickly with the objective of completing education programs, without considering the qualitative aspects needed by the students to access a quality education. The institution named Universidad Michoacana de San Nicolás de Hidalgo located in México, suspended traditional schooling in March 2020, opting for online schooling until January 2022. The objective of this investigation was to identify the perceptions and opinions of university students on the quality of online education and the changes caused by the pandemic in México. The subjects of this investigation were the students enrolled at the Faculty of Accounting and Administrative Sciences of the Universidad Michoacana de San Nicolás de Hidalgo, with a total of 3483 students. A total of 1625 questionnaires were filled out by the students electronically during the months of May and June of 2021. The results showed that 66.5% of students perceived the quality of the education offered online during the pandemic was very bad or very low. The students that identify themselves as members of indigenous communities were the highest proportion of students that perceived the quality of online education as being very low quality, with a 20.9% above average which was 16.8%. These students also had the least positive perception on how good or very good the quality of education was received, with a 7.8% below average which was 9.3%. This could be influenced by the devices and internet connection utilized by members of indigenous communities to access online education. It was found that 38.9% above average, which was 31.6%, of those who utilized their cellular devices to take their classes online suffered from very bad or bad connection to the internet. The care for children or elderly people was not a factor that had an impact on the perception of quality of the education received. The devices with which classes were attended and the quality of internet connectivity were relevant factors that were tied to the economic resources available to the students and their geographical location. The Universidad Michoacana de San Nicolás de Hidalgo should consider the physical conditions in which their students receive online education, as well as alternatives to revert the quality of online education received during the pandemic.

Keywords: quality of education, university students, pandemic COVID-19, online education, México.

Resumo

A pandemia causada pelo vírus covid-19 gerou mudanças em todas as áreas do cotidiano, inclusive nas atividades educativas. A transição das aulas presenciais para as virtuais foi realizada de forma emergente para tentar cumprir os programas escolares, mas nessa jornada não foram considerados os aspectos qualitativos que os alunos devem ter para ter acesso a uma educação de qualidade. A Universidad Michoacana de San Nicolás de Hidalgo, localizada no México, suspendeu as aulas presenciais em março de 2020, passando para o ensino virtual até janeiro de 2022. Portanto, o objetivo desta pesquisa foi identificar as percepções dos estudantes universitários da referida casa de estudos sobre a qualidade da educação virtual que teve que ser implementada devido à pandemia. Os sujeitos da pesquisa foram os alunos matriculados na Faculdade de Ciências Contábeis e Administrativas da Universidad Michoacana de San Nicolás de Hidalgo, com um universo total de 3483 alunos. 1625 questionários foram aplicados eletronicamente durante maio e junho de 2021. Os resultados mostraram que 66,5 % dos alunos perceberam uma qualidade muito baixa ou baixa na educação recebida durante a pandemia. De fato, os alunos que se identificaram como membros das comunidades indígenas perceberam mais essa realidade, com 20,9% acima da média, que era de 16,8%, assim como os que menos perceberam a qualidade da educação como boa ou muito boa. com 7,8%, abaixo da média que foi de 9,3%. Isso pode ser influenciado pelo dispositivo utilizado e pela qualidade da internet com que os membros das comunidades indígenas acessavam as aulas, pois 38,9% dos que usavam o celular para as aulas relataram ter uma conexão de internet muito ruim ou ruim, acima da média, que foi de 31,6%. Por outro lado, cuidar de crianças ou idosos não foi um fator que teve impacto na percepção da qualidade da educação. Além disso, o dispositivo com o qual acessam as aulas e a qualidade da Internet que possuem são fatores relevantes, ligados aos recursos econômicos dos alunos e à localização geográfica de sua residência. Portanto, a UMSNH deve considerar as condições físicas em que os alunos recebem suas aulas eletronicamente, bem como alternativas para reverter a qualidade do ensino no período da pandemia.

Palavras-chave: qualidade da educação, estudantes universitários, pandemia de covid-19, educação virtual, México.

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Introduction

The pandemic caused by the Sars-CoV-2 coronavirus has changed life in all areas. The onset of this disease occurred in December 2019 when the Wuhan Municipal Health Commission (China) reported a group of atypical cases of pneumonia (World Health Organization [WHO], 2021) caused by a new acute respiratory syndrome severe (SARS). Then, on March 11, 2020, the director of the WHO reported that the number of cases of covid-19 outside of China multiplied by 13 and the number of affected countries tripled, for which said health crisis was classified as a pandemic. (Zhong et al., 2021).

Worldwide, the contingency generated by the coronavirus has caused great changes in all aspects of modern life. Therefore, the different governments have taken similar measures to face this crisis, such as the confinement of people, the partial or total closure of borders, physical distancing, as well as the closure of schools, public spaces, recreational activities and businesses not essential to guarantee the functioning of society (Valenzo-Jiménez et al., 2021). The health risk from this coronavirus depends largely on age, since the symptoms of a covid-19 infection are usually milder in the healthy population under 65 years of age (Franzen and Wöhner, 2021), although young people do not they are exempt from serious health complications.

In Mexico, the first detected case occurred on February 27, 2020 (Suárez et al., 2020) and the first official death occurred on March 18, 2020, figures that reached up to February 2022 about 5.5 million people. infected and 317,000 people deceased (Jonhs Hopkins University & Medicine, 2022).

Now, in the context of the state of Michoacán, the first cases appeared on March 20, 2020 (Martínez Elorriaga, 2020), while the first death was confirmed on the 26th of the same month, which caused the cancellation of face-to-face classes until February 2022, as happened with the Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), the main institution of higher education in the state with more than 55,000 students enrolled.

This unexpected event caused the accelerated transition to virtual classes, for which the teaching staff had to adapt their methodology to impart the contents without adequate training, which affected the quality of the education received by the students (Barberá, 2006; Jiménez Galán et al., 2021). For this reason, the objective of this document was to identify the perceptions of university students about virtual education received during the pandemic in Mexico.

Higher education and covid-19

The appearance of covid-19 affected teaching and learning in almost all higher education institutions (HEIs) around the world, since two thirds of face-to-face teaching was replaced by virtual, while a quarter of educational activities were discontinued (Marinoni et al., 2020). Crawford et al. (2020) explored the first wave of university responses globally and summarized collective responses to the pandemic. After performing the synthesis and meta-analysis of twenty countries in the six regions of the World Health Organization, they found that they had to implement various strategies such as extending the semester break, closing the campus, moving to online instruction, etc. .

Another problem that universities faced was the economic part, since they were forced to rapidly expand online teaching, which involved facing unexpected expenses such as deep cleaning of their facilities and adaptations in research projects. (Burky, 2020). In fact, the mobility of national and international students in the academic cycles was limited and congresses and conferences were suspended, which paralyzed the dissemination of science in the university community (Martel, 2020).

In this context, universities urgently had to migrate to what Hodges et al. (2020) called emergency remote teaching. To adapt to this new reality, teachers turned their home spaces into improvised classrooms, while delving into the environment of educational technologies (Cáceres-Piñaloza, 2020; Pérez-López et al., 2020). On the other hand, the students had to immerse themselves in a virtual modality that required greater commitment and discipline (Economic Commission for Latin America and the Caribbean, and United Nations Educational, Scientific and Cultural Organization [Cepal-Unesco] , 2020).

In the case of the UMSNH, seeking to maintain the quality of its education, it incorporated different technological platforms and signed agreements with companies such as Google to support the community of students and teachers in order to continue bringing knowledge closer despite the health contingency and distancing ordered by government authorities. For this purpose, different communication channels were used, such as social networks, since according to various authors they are the preferred means for the new generations to learn and interact. (Fernández de la Iglesia et al., 2020; Mejia et al., 2020; Schleifer y Bergero, 2019; Sosa et al., 2019; Tang et al., 2021).

Method

This research used a non-experimental, cross-sectional, exploratory and descriptive design, which sought to know the perceptions of the students of the UMSNH assigned to the Faculty of Accounting and Administrative Sciences (FCCA) in the city of Morelia, Michoacán (Mexico), about of virtual education that had to be implemented due to the covid-19 pandemic.

The information was collected during the months of May and June 2021. Due to the suspension of face-to-face classes due to the health contingency, it was decided to collect the data through forms designed on the KoBoToolbox electronic platform. Similar studies such as those by Camacho et al. (2021) and Valenzo-Jiménez et al. (2021) used electronic platforms to avoid physical contact.

The subjects of the study were the students of the UMSNH assigned to the FCCA. Although most of the student community lives in the city of Morelia, a significant proportion is originally from other regions of the state of Michoacán, so the following procedure recommended by Evans and Mathur (2018) was followed: first, an email was written personalized email to each FCCA professor asking for their collaboration to apply this measurement instrument during their classes taught online. The second strategy was to request access to the institutional WhatsApp groups of the group leaders at each level to communicate the importance of the study, find out the opinion of all colleagues and share the link to access the instrument.

The FCCA has a universe of 3,483 students. The simple random sampling formula was applied with a confidence level of 95% and a margin of error of 5%. The result was the application of 347 questionnaires that were stratified according to each of the degrees. Table 1 shows the results of this process, as well as the questionnaires collected.

Table 1. Study universe and sample

Nombre de la licenciatura	Universo	Muestra requerida	Muestra obtenida	Porcentaje obtenido vs. universo
Contaduría	1742	174	852	48.90 %
Administración	1127	112	510	45.25 %
Informática Administrativa	311	31	167	44.05 %
Mercadotecnia	303	30	96	31.68 %
Total	3483	347	1625	46.66 %

Source: self made

Measuring instrument

For the implementation of the research, a measurement instrument was built with a preliminary version of 90 questions. To validate it, five methodological expert judgments were used, who examined the questions and the answer options. Subsequently, a pilot test was applied and with its results the survey was restructured, with which a final instrument of 72 questions was obtained. For the purpose of this work, the results of 40 of them are shown: 10 sociodemographic questions, 10 focused on the perception of the quality of education and 20 to analyze the information channels during the pandemic.

The perception of the return to face-to-face classes was grouped into three questions, one of which focused on whether they had been infected by covid-19. In order to collect the necessary information for the investigation in a more accurate way, this instrument used multiple scales of nominal, dichotomous and ordinal type, as carried out by Alania et al. (2020) and Valenzo-Jiménez et al. (2021). Once the data was obtained from the KoBotoolbox platform, it was exported to the Windows Excel program. The program returned responses in string-type format, so they were recoded using identifier codes. Once this process was finished, it was exported to the statistical program SPSS, v. 24, to obtain the statistical data for each question, some of which were regrouped to generate the information analysis.

Results

The following section analyzes the results from the information collected in the field work. In the first instance, the sociodemographic statistics of the study subject are shown (Table 2). As mentioned above, 1,625 FCCA students were surveyed, of which 52.4% were from Accounting, 31.4% from Administration, 10.3% from Administrative Information Technology, and 5.9% from Marketing. The students of the second, fourth, sixth and eighth semesters were the ones that answered the most (92.6% of the total) because their activities began in September, the time in which the instrument was applied.

It is important to note that the second semester students have not had a physical class due to the health contingency and due to the instructions of the educational authority. The students of the first, third, fifth and seventh semesters are considered lagging students, while those of the tenth are mainly from the Accounting degree.

The most representative age range of the students was from 20 to 21 years old (32.6%), followed by 18 to 19 years old (27.1%), which is consistent with the data of the semester to which the students belonged, that is, 55.2 % attended from the first to the fourth. Regarding the gender of the respondents, 66.9% were women and 32.6% men (0.9% preferred not to indicate gender). Regarding marital status, 84.2% stated that they were single and 13.6% had a partner relationship (either married or living in a free union; 2.2% indicated that they were in another condition).

When analyzing the information on children, 15.2% stated that they were parents, similar to marital status, and 31.4% stated that they had older adults under their care, which probably made it difficult to take classes online.

On the other hand, a large component of the population of the state of Michoacán considers itself a member of an indigenous community, which is reflected in 18.2% of those surveyed who said so. Likewise, 6.6 % of the respondents consider themselves migrants and 2.1% have some type of disability. Seeking to give continuity to the work carried out by the National Institute of Statistics and Geography (Inegi) in the 2020 census, an attempt was made to identify the population that considers itself to be of African descent and it was found that 0.7% do so. When analyzing the information on family life, 74.2% stated that they lived with their parents, 12.1% with their spouse or partner and 6.3% with relatives, which shows a family stability that allows the student to better face their studies . It is important to note that 6.3% lived alone and 1.2% with friends.

On the other hand, of the total applicants, 83.4% came from the state of Michoacán and 16.6% from other states such as Guerrero, Guanajuato, State of Mexico, etc. By changing the way of taking classes from face-to-face to online, the student population returned to their places of origin.

Table 2. Sociodemographic statistics

	Variable	Frecuencia / porcentaje
	N	1625
Carrera	Administración	510 (31.4 %)
	Contaduría	852 (52.4 %)
	Informática Administrativa	167 (10.3 %)
	Mercadotecnia	96 (5.9 %)
	Total	1625 (100.0 %)
Semestre	Primero	5 (0.3 %)
	Segundo	515 (31.7 %)
	Tercero	7 (0.4 %)
	Cuarto	371 (22.8 %)
	Quinto	6 (0.4 %)
	Sexto	411 (25.3 %)
	Séptimo	12 (0.7 %)
	Octavo	208 (12.8 %)
	Décimo	90 (5.5 %)
	Total	1625 (100.0 %)
Género	Hombre	529 (32.6 %)
	Mujer	1087 (66.9 %)
	Prefiero no decirlo	9 (0.5 %)
	Total	1625 (100.0 %)
Edad	17 o menos	8 (0.5 %)
	18 a 19 años	441 (27.1 %)
	20 a 21 años	529 (32.6 %)
	22 a 23 años	253 (15.6 %)
	24 a 25 años	394 (24.2 %)
	Total	1625 (100.0 %)
Estado civil	Soltera/o	1329 (84.2 %)
	Unión libre	66 (4.1 %)
	Casada/o	155 (9.5 %)
	Otro	35 (2.2 %)
	Total	1625 (100.0 %)
Hijas/os	Sí	247 (15.2 %)
	No	1387 (84.8 %)
	Total	1625 (100.0 %)
Niñas/os a cargo	Sí	729 (44.9 %)
	No	896 (55.1 %)
	Total	1625 (100.0 %)
Adultos mayores a cargo	Sí	511 (31.4 %)
	No	1114 (68.6 %)
	Total	1625 (100.0 %)
	Afrodescendiente	11 (0.7 %)
Ascendencia	Miembro de comunidad indígena	296 (18.2 %)
	Migrante	108 (6.6 %)
	Persona con discapacidad	34 (2.1 %)

	Variable	Frecuencia / porcentaje
	N	1625
	Ninguna de las anteriores	1176 (72.4 %)
	Total	1625 (100.0 %)
Con quién vives	Mis padres	1205 (74.2 %)
	Mi esposa (o) o pareja	196 (12.1 %)
	Solo	103 (6.3 %)
	Parientes	102 (6.3 %)
	Amigos	19 (1.2 %)
	Total	1625 (100.0 %)

Source: self made

Furthermore, students were asked about their sources of information three months before and three months after the pandemic. Thus, it was found that the most used at the beginning were social networks (70.5%), television programs and news (59.0%) and press conferences (39.0%) (table 3). It should be noted that the Government of the Republic held daily evening conferences for more than a year where it showed the daily progress of the pandemic.

Table 3. *Information sources*

	Primeros tres meses		Últimos tres meses	
	N	%	N	%
Conferencias de prensa	629	39.0 %	593	36.9 %
Redes sociales (Facebook, Instagram, etc.)	1137	70.5 %	1154	71.8%
Programas y noticieros de televisión	952	59.0 %	922	57.4 %
Programas y noticieros de radio	303	18.8 %	303	18.9 %
Prensa escrita física	64	4.0 %	70	4.4 %
Prensa en internet	460	28.5 %	461	28.7 %
Universidad	263	16.3 %	260	16.2 %
Conversaciones con amigos y familiares	565	35.0 %	517	32.2 %
Perifoneo	33	2.0 %	22	1.4 %
Otros	101	6.3 %	107	6.7 %

Source: self made

In order to measure the students' perception of the quality of education, 7 items were grouped into a single variable called. The descriptive statistics are shown in table 4, with a mean of 2.4457 and a median of 2.4286, data grouped in the ranges very low quality of education and low quality of education, with a cumulative percentage of 66.5% (table 5) . In fact, only 9.3% of those surveyed stated that the education received during the pandemic was good or very good.

Table 4. Descriptive statistics of the quality of education variable

Calidad de la educación		
N	Válidos	1625
	Perdidos	0
Media		2.4457
Mediana		2.4286
Moda		2.43
Desv. típ.		.67404
Varianza		.454
Asimetría		.646
Error típ. de asimetría		.061
Curtosis		.732
Error típ. de curtosis		.121

Source: self made

Table 5. Frequencies of the quality of education variable

	Frecuencia	% Válido	% Acumulado
Muy baja calidad de la educación	273	16.8 %	16.8 %
Baja calidad de la educación	807	49.7 %	66.5 %
Regular calidad de la educación	395	24.3 %	90.8 %
Buena calidad de la educación	123	7.6 %	98.3 %
Muy buena calidad de la educación	27	1.7 %	100.0 %
Total	1625	100.0 %	100.0 %

Source: self made

Likewise, in the state of Michoacán, 20.8% of the population identifies as indigenous and 1.5% considers itself Afro-descendant (INEGI, 2021). Taking this into account, the perception of the quality of education was analyzed according to ethnicity: in summary, 20.9% of the members of the indigenous communities perceive a very low quality of education and 67.2% of the population self-appointed as indigenous. thinks the same (table 6). It should be noted that although students who identify themselves as migrants only represent 6.6% of the total, 70.4% consider the quality of education to be very low or low. Likewise, 2.1% of the students were identified as persons with disabilities, of which 17.6% consider the quality of education to be good, a percentage that in terms of Afro-descendants stands at 18.2%.

Table 6. Variable quality of education and ancestry

	Muy baja calidad de la educación	Baja calidad de la educación	Regular calidad de la educación	Buena calidad de la educación	Muy buena calidad de la educación	Total
Afrodescendiente	9.1 %	45.5 %	27.3 %	18.2 %	0.0 %	0.7 %
Miembro de comunidades indígenas	20.9 %	46.3 %	25.0 %	7.1 %	0.7 %	18.2 %
Migrante	13.0 %	57.4 %	21.3 %	6.5 %	1.9 %	6.6 %
Persona con discapacidad	8.8 %	47.1 %	26.5 %	17.6 %	0.0 %	2.1 %
Ninguna de las anteriores	16.4 %	49.9 %	24.3 %	7.4 %	2.0 %	72.4 %
Total	16.8 %	49.7 %	24.3 %	7.6 %	1.7 %	100.0 %

Source: self made

When analyzing what type of device the classes are taken on and what the quality of the internet connection is, it was found that 38.9% of the student members of the indigenous community who take their classes on a cell phone consider their internet connection to be very bad or bad. , which is above the average of the other students (31.6%) (table 7). When students return to their places of origin, it is necessary to consider that the population where they reside are indigenous communities, where due to the orographic conditions of the state they do not have a constant internet signal, which causes students to disconnect from the class.

Table 7. Device with which classes are taken, internet connection and ancestry

	Conexión a internet	Afrodeseccendiente	Miembro de comunidades indígenas	Migrante	Persona con discapacidad	Ninguna de las anteriores	Total
Computadora portátil	Muy mala	0.0 %	6.3 %	12.2 %	6.7 %	4.8 %	5.5%
	Mala	33.3 %	12.5 %	16.3 %	6.7 %	13.6 %	13.5%
	Regular	66.7 %	55.5 %	42.9 %	40.0 %	56.6 %	55.3%
	Buena	0.0 %	21.1 %	26.5 %	40.0 %	21.5 %	22.0%
	Muy buena	0.0 %	4.7 %	2.0 %	6.7 %	3.5 %	3.6%
Computadora de escritorio	Muy mala	0.0 %	14.3 %	0.0 %	0.0 %	3.8 %	5.5%
	Mala	0.0 %	0.0 %	12.5 %	50.0 %	11.4 %	10.0%
	Regular	0.0 %	52.4 %	50.0 %	0.0 %	60.8 %	57.3%
	Buena	0.0 %	28.6 %	25.0 %	50.0 %	13.9 %	18.2%
	Muy buena	0.0 %	4.8 %	12.5 %	0.0 %	10.1 %	9.1%
Celular	Muy mala	12.5 %	15.3 %	6.0 %	0.0 %	10.2 %	10.7%
	Mala	25.0 %	23.6 %	26.0 %	17.6 %	19.5 %	20.9%
	Regular	62.5 %	52.8 %	60.0 %	76.5 %	54.6 %	55.2%
	Buena	0.0 %	7.6 %	8.0 %	5.9 %	14.4 %	12.2%
	Muy buena	0.0 %	0.7 %	0.0 %	0.0 %	1.3 %	1.0%
Tableta electrónica	Muy mala	0.0 %	0.0 %	0.0 %	0.0 %	4.5 %	3.8%
	Mala	0.0 %	0.0 %	100.0 %	0.0 %	22.7 %	23.1%
	Regular	0.0 %	100.0 %	0.0 %	0.0 %	45.5 %	50.0%
	Buena	0.0 %	0.0 %	0.0 %	0.0 %	18.2 %	15.4%
	Muy buena	0.0 %	0.0 %	0.0 %	0.0 %	9.1 %	7.7%
Total	Muy mala	9.1 %	11.1 %	8.3 %	2.9 %	6.9 %	7.7%
	Mala	27.3 %	16.9 %	21.3 %	14.7 %	16.0 %	16.6%
	Regular	63.6 %	54.4 %	50.9 %	55.9 %	55.9 %	55.3%
	Buena	0.0 %	14.9 %	17.6 %	23.5 %	18.1 %	17.5%
	Muy buena	0.0 %	2.7 %	1.9 %	2.9 %	3.1 %	3.0%
Porcentaje del total		0.7%	18.2 %	6.6 %	2.1 %	72.4 %	100.0 %

Source: self made

When analyzing the perception of the quality of education with the age of the respondents, it can be seen that as the students get older, they perceive the education to be of better quality (table 8).

Table 8. Variable quality of education and age

	Muy baja calidad de la educación	Baja calidad de la educación	Regular calidad de la educación	Buena calidad de la educación	Muy buena calidad de la educación	Total
17 años o menos	0.0 %	87.5 %	12.5 %	0.0 %	0.0 %	0.5 %
18 a 19 años	18.1 %	51.7 %	22.7 %	6.3 %	1.1 %	27.1 %
20 a 21 años	19.5 %	54.6 %	21.0 %	4.2 %	0.8 %	32.6 %
22 a 23 años	20.2 %	46.2 %	26.9 %	6.7 %	0.0 %	15.6 %
24 a 25 años	9.9 %	42.1 %	29.2 %	14.2 %	4.6 %	24.2 %
Total	16.8 %	49.7 %	24.3 %	7.6 %	1.7 %	100.0 %

Source: self made

When activities were closed as a result of the pandemic, caring for children and the elderly became an activity that some students had to face. In this sense, 44.9% had to combine the care of a minor with the classes, and 31.4% the care of an older adult (table 9). However, when analyzing their perception of the quality of education, no substantial differences were found.

Table 9. Variable quality of education and care for children or older adults

Cuidado		Muy baja calidad de la educación	Baja calidad de la educación	Regular calidad de la educación	Buena calidad de la educación	Muy buena calidad de la educación	Total
Niños	Sí	18.7 %	48.6 %	23.7 %	6.9 %	2.2 %	44.9 %
	No	15.3 %	50.6 %	24.8 %	8.1 %	1.2 %	55.1 %
Adultos mayores	Sí	16.6 %	48.7 %	23.5 %	8.4 %	2.7 %	31.4 %
	No	16.9 %	50.1 %	24.7 %	7.2 %	1.2 %	68.6 %

Source: self made

Likewise, 74.9% of the students wish to return to face-to-face classes (table 10), while of those who do not wish to do so, 24.3% consider the quality of education to be good or very good. In addition, 24.1% of those who suffered from covid-19 or suspect they have had it want to return to face-to-face classes, as opposed to 28.4% of those who have not.

Table 10. Variable quality of education and desire to return to face-to-face classes

Padecido covid-19	Vuelta a clases presenciales	Muy baja calidad de la educación	Baja calidad de la educación	Regular calidad de la educación	Buena calidad de la educación	Muy buena calidad de la educación	Total
Tuve covid-19 confirmado por prueba	Sí	2.4 %	4.9 %	2.2 %	0.2 %	0.0 %	9.8 %
	No	1.0 %	2.2 %	4.2 %	2.2 %	1.0 %	10.5 %
Creo que tuve, pero no confirmado por prueba	Sí	3.4 %	7.8 %	2.8 %	0.2 %	0.1 %	14.3 %
	No	1.7 %	7.1 %	4.9 %	3.9 %	0.2 %	17.9 %
Tuve síntomas que parecían	Sí	2.8 %	6.6 %	2.3 %	0.5 %	0.0 %	12.2 %
	No	1.0 %	4.4 %	5.9 %	2.7 %	0.5 %	14.5 %
No he tenido	Sí	11.4 %	36.1 %	13.1 %	3.0 %	0.2 %	63.8 %
	No	3.7 %	18.9 %	20.8 %	9.6 %	4.2 %	57.1 %
Total	Sí	20.0 %	55.4 %	20.5 %	3.9 %	0.2 %	100.0 %
	Porcentaje de alumnos	15.0 %	41.4 %	15.3 %	3.0 %	0.2 %	74.9 %
	No	7.4 %	32.6 %	35.8 %	18.4 %	5.9 %	100.0 %
	Porcentaje de alumnos	1.8 %	8.2 %	9.0 %	4.6 %	1.5 %	25.1 %
	Total	16.8 %	49.7 %	24.3 %	7.6 %	1.7 %	100.0 %

Source: self made

Discussion

According to the findings of this research, the quality of education perceived by the students surveyed shows mostly negative results, results similar to those found by Jiménez Galán et al. (2021), who reported that 87.0% of students are learning less with virtual education given at the time of the pandemic.

For online education to achieve its objectives and be effective, there must be cooperation between the student and the teacher, and there must be an infrastructure and technological resources that facilitate the teaching-learning process (Camacho-Zuñiga et al., 2021; Dhanalakshmi et al., 2021). However, not all students have the appropriate physical resources for it. While most take classes on their phones, this makes it difficult to view presentations and interact with instructors and peers.

In addition, the quality of the internet is essential for online education, but this implies an additional cost for families (Lennox et al., 2021). In this sense, there was no subsidy from the university or any government entity towards the student (Arias Velásquez and Mejía Lara, 2021; Camacho-Zuñiga et al., 2021; Scherer et al., 2021).

On the other hand, regarding the information offered about the pandemic, the university should become an essential support, as pointed out by Camacho-Zuñiga et al. (2021), because in this way the level of anxiety of the students is reduced. In this aspect, the UMSNH did not cover that need, since only 16.2% of the students expressed that they had been informed by that means. Likewise, coincidences were found with the study by Valenzo-Jiménez (2021) regarding the way in which young people keep themselves informed, that is, through social networks such as Facebook, Twitter or Instagram.

Regarding ethnicity, it can be affirmed that this represents a variable that impacts the perceived quality of education, which is consistent with what was found by Chatterji and Li (2021). However, it should be noted that the quality of education may be more influenced by the geographical conditions where the indigenous populations of Michoacán are settled, which has repercussions on the poor quality of the internet, as well as the physical conditions where the classes are taken (Marinoni et al., 2020). In other words, covid-19 accentuated existing inequalities among students.

On the other hand, it can be indicated that the care of the elderly or children did not have a considerable impact on the perception of the quality of the education received by the students, which may have been due to the fact that in Mexico, this work is traditionally carried out by women, mainly mothers, which helped students to focus on their studies.

However, students' concern about the quality of their education is manifested in the high approval for returning to face-to-face classes, which coincides with the lack of interest in taking classes online detected in other studies during the pandemic (Camacho-Zuñiga et al., 2021; Martín-Sómer et al., 2021). Even when teachers have been trained on new teaching techniques, the results show that students do not perceive a quality education, so they seek to return to face-to-face classes, concerned that poor education can affect their professional life (Alania Contreras et al., 2020).

Finally, a limitation of the present study is that the research focused only on the students of the FCCA, and not on those of the other faculties of the UMSNH. However, the size of the sample collected was much larger than required, which constitutes a strength of the research.

Conclusions

The effects of the pandemic caused by covid-19 have manifested themselves in various areas of daily life. By moving to online classes, UMSNH sought to adapt to the new reality by providing training and resources to teachers in the quest to maintain the quality of the education provided. However, in this change to online classes, the personal, economic and geographical characteristics of the students were not considered, so they had to adapt improvisedly, which increased the inequalities already existing in a society like Michoacán.

In addition, the study carried out shows that students in general consider the education received to be of poor quality, regardless of demographic conditions. This situation may be a consequence of the conditions in which they receive education, that is, with cell phones and a poor internet signal, which affects the viewing of the teacher's presentations and the intermittency of the class, respectively. For this reason, students express their desire to return to face-to-face classes, regardless of whether or not they have had covid-19.

In short, the universities must value the aspects marked in the research and consider the different realities that the students live. With this, it will be possible to achieve better levels of quality in university education and adapt to new realities and demands.

Future lines of research

One of the limitations of this research is that only the perceptions of the students were considered, so the teachers should be investigated. Likewise, a comprehensive evaluation should be provided to objectively identify the quality of the education that the students received in the period marked by the virtual classes. In addition, the instrument used in this inquiry must be adjusted to apply it after returning to face-to-face classes, since in this way the best benefits of both didactic modalities can be taken to update the educational programs of the UMSNH.

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