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Artículos científicos

Estudio comparativo de las percepciones estudiantiles sobre los escenarios educativos posteriores al confinamiento por COVID-19

Comparative Study of Student Perceptions about Educational Scenarios after COVID-19 Lockdown

Estudo comparativo das percepções dos alunos sobre os cenários educacionais após o confinamento por COVID-19

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Resumen

El confinamiento, iniciado en México en marzo de 2020 para prevenir contagios por el virus SARS-CoV-2, implicó un cambio drástico en la manera de impartir y recibir clases. Las actividades migraron a plataformas digitales y continuaron así hasta 2022. El presente trabajo se realizó con los objetivos de caracterizar y comparar las percepciones de estudiantes universitarios de Comercio Exterior acerca de los escenarios educativos posteriores al confinamiento por COVID-19 en dos momentos diferentes: otoño de 2020 y primavera de 2021.

Se aplicó un cuestionario a dos grupos independientes. Se utilizó el paquete JASP para analizar las respuestas, se obtuvieron los estadísticos descriptivos y se realizó la prueba Mann-Whitney. También se calculó el factor de Bayes como una forma adicional de analizar las probabilidades en favor de la hipótesis de investigación. Los resultados indicaron que no existen evidencias de que haya existido un cambio en las percepciones estudiantiles. Los hallazgos indican que los alumnos no deseaban continuar con clases remotas; sin embargo, tomarían asignaturas en línea si su costo fuera menor que las presenciales. Asimismo, desearían seguir utilizando MS-Teams como herramienta de comunicación y apoyo. También les gustaría seguir accediendo a las grabaciones de las sesiones. De igual manera, estuvieron de acuerdo en que se deben fortalecer las habilidades tecnológicas y la seguridad informática de los estudiantes universitarios. El estudio de las percepciones estudiantiles debe continuar, ya que los alumnos son actores fundamentales en los procesos educativos y sus opiniones deberían tomarse en cuenta en el diseño de las estrategias institucionales.

Palabras clave: Aprendizaje en línea, Aprendizaje semipresencial, Confinamiento, Pandemia, Educación Superior.

Abstract

The lockdown started in Mexico in March 2020 to prevent the spread of the SARS-COV2 virus implied a drastic change in the way classes were taught and received. The activities migrated to digital platforms and continued this way until 2022. The present work was conducted with the objectives of characterizing and comparing the perceptions of undergraduate students of Foreign Trade about the educational scenarios after COVID-19 lockdown at two different times: fall 2020 and spring 2021. A questionnaire was administered to two independent groups. The JASP software package was used to analyze the responses. Descriptive statistics were obtained, and the Mann-Whitney test was performed. The Bayes factor was also calculated as an additional way of analyzing the probabilities in favor of the research hypothesis. The results indicated that there is no evidence of a change in student perceptions. The findings show that students did not want to continue with remote classes; however, they would take online courses if their cost was lower than face-to-face classes. They would also like to continue using MS-TEAMS as a communication and support tool. They would also like to continue to have access to session recordings. Similarly, they agreed that the technological skills and cyber security of university students should be strengthened. The study of student perceptions should continue, since students are fundamental

actors in educational processes and their opinions should be taken into account in the design of institutional strategies.

Keywords: Electronic learning, Blended learning, Lockdown, Pandemic, Higher Education.

Resumo

O confinamento, iniciado no México em março de 2020 para prevenir infecções pelo vírus SARS-CoV-2, implicou uma mudança drástica na forma de dar e receber aulas. As atividades migraram para plataformas digitais e assim continuaram até 2022. O presente trabalho foi realizado com os objetivos de caracterizar e comparar as percepções de universitários de Comércio Exterior sobre os cenários educacionais após o confinamento pela COVID-19 em dois momentos distintos: outono de 2020 e primavera de 2021.

Um questionário foi aplicado a dois grupos independentes. Utilizou-se o pacote JASP para análise das respostas, obteve-se estatística descritiva e realizou-se o teste de Mann-Whitney. O fator de Bayes também foi calculado como uma forma adicional de analisar as probabilidades a favor da hipótese de pesquisa. Os resultados indicaram que não há evidências de que tenha havido uma mudança nas percepções dos alunos. Os achados indicam que os alunos não queriam continuar com as aulas remotas; no entanto, eles fariam cursos online se custassem menos do que os cursos presenciais. Eles também gostariam de continuar usando o MS-Teams como uma ferramenta de comunicação e suporte. Eles também gostariam de continuar acessando as gravações das sessões. Da mesma forma, concordaram que as habilidades tecnológicas e a segurança informática dos estudantes universitários devem ser fortalecidas. O estudo das percepções dos alunos deve continuar, pois os alunos são atores fundamentais nos processos educativos e suas opiniões devem ser levadas em consideração no desenho das estratégias institucionais.

Palavras-chave: Aprendizagem online, Blended learning, Confinamento, Pandemia, Ensino Superior.

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Introduction

The spread of the SARS-CoV-2 virus caused a mandatory confinement to begin in Mexico in March 2020 with the aim of preventing infections. This official decision, which was maintained until the first months of 2022, implied a drastic change in the way of teaching and taking classes at all educational levels. Activities that were previously face-to-face had to be carried out remotely. This was called "emergency remote learning" (Jeffery & Bauer, 2020); thus, distinguishing it from conventional "distance" or "online" learning. Although the sessions were held online, the original design of the courses contemplated 100% face-to-face interaction. In addition, the world environment was under the effects of a pandemic.

Thus, this stage encouraged investigative interest in a wide range of phenomena due to the extraordinary context in which they developed (Haleem et al., 2020); and, specifically, in education, due to the challenges that had to be faced (Feng et al., 2020). During the confinement, various perspectives on the return to normality also emerged and gained strength. Some of them posed more as desires or needs than as feasible situations. In these scenarios, the researchers looked at online education (Ates-Cobanoglu & Cobanoglu, 2021), hybrid education (Masalimova et al., 2021) and the use of technology (Şeren & Özcan, 2021) in the post-pandemic. For his part, Munday (2021) highlighted the relevance of continuously training and strengthening the skills of all educational actors in the new normality.

During the confinement, the points of view on the return to educational normality were contradictory. However, the perspectives seemed to be influenced by various factors and rarely took student positions into account. Thus, the perceptions of the students, fundamental actors of the educational processes, were not completely defined. However, it was also necessary to consider that these perceptions were susceptible to change according to contextual conditions.

At a global level, the work of Aristovnik et al. (2020) showed that, although students were satisfied with the support received by teachers and their universities during the lockdown, they were concerned about their future professional career and the way in which they were carrying out their studies. Similarly, a large number of students suffered from boredom, anxiety and frustration. Students also had difficulty concentrating during emergency remote learning and perceived their academic performance worsened, even though they had adjusted quite well to the new modality. Thus, the student positions on the face-to-face or hybrid return were not totally clear. That research was conducted with 30,383 students from 62 countries.

In this same line, Nevaranta et al. (2022) found that the perception of students about online learning during the pandemic is heterogeneous, since some prefer to work completely online, while

others prefer face-to-face learning, as they have serious difficulties with remote learning. In this sense, the research by Palmer et al. (2021) revealed that students were concerned about the face-to-face return to campus due to, among other causes, students' non-compliance with COVID-19 prevention measures, the risk of infection, and inadequate plans by universities to prevent the contagions. However, they were also concerned about their online learning due to difficulty concentrating on schoolwork, lack of development of practical skills, and negative repercussions on their social interactions.

In Mazurek's (2022) research carried out in the context of the COVID-19 pandemic, it was found that, despite the benefits of online education, students did not want to replace traditional education with remote education. In that study, involving 290 students from Poland, 58% of respondents said they preferred hybrid learning, while 33% opted for face-to-face education, and only 9% for fully online education. Similarly, the qualitative research by Lumapenet et al. (2022) conducted in the Philippines revealed that students were tired of the problems of instability and availability of Internet connections, and that the majority preferred hybrid learning to fully distance learning. Sahbaz's (2020) research conducted with forty students from Bosnia-Herzegovina concluded that almost 90% of the participants were against distance education, and preferred face-to-face education. The findings of the work by Zagkos et al. (2022) in Greece indicate that face-to-face teaching cannot be replaced by distance learning, especially when the classes involve the use of a laboratory, that is, when the contents are practical. They also found that remote teaching deteriorated pedagogical relationships between teachers and classmates.

Comparative studies on student perceptions show the importance of analyzing positions at various times of the pandemic, since their trend has been changing. For example, in the work of Lobos et al. (2022) measurements were made at two different moments: one to measure the expectation of remote emergency education and another later to compare it with the actual experience. For their part, Nur Agung et al. (2020) explain that perceptions are the experience of objects, events, and relationships that are acquired by summarizing information and interpreting messages. Lobos et al. (2022) highlight that there is evidence that perceptions about the online educational modality are related to learning success. Hence the importance of its study in education, especially during confinement.

Along the same lines, Podlogar and Juriševič (2022) carried out a comparative study of student perceptions in the first and second waves of COVID-19 in Slovenia. In this work, it is emphasized that these comparisons allow us to understand in depth the differences and adequately adapt university teaching and learning. According to their results, students had better experiences

with emergency remote education in the second wave of infections, since students reported fewer problems with time organization, work planning, product quality, and efficiency, but more concentration and communication problems with their peers.

In this way, the work carried out in this article was developed at two different moments during the confinement and had as objectives to characterize and compare the perceptions of Foreign Trade students at a Mexican public state university about possible scenarios in the end of emergency remote education and the start of education in the new normal. The perceptions were collected in November 2020 and six months later, in May 2021. The research hypothesis was raised to determine that there are differences between both perceptions.

The rest of the article is organized as follows: first the background is presented, then the method followed in this research is exposed, then the results are presented and finally the discussion and conclusions are addressed.

Background

Remote education at the university where this study was conducted.

At the university where this study was conducted, all classes that were held in person became synchronous remote sessions during the educational lockdown. Microsoft TEAMS (Microsoft, 2022) was the institutional means of communication for this purpose. By instructions from the management office, all sessions were recorded so that students could access them later when necessary. The greatest difficulties arose in the first semester of 2020, due to the transition process to the new modality. Although workshops were given on the use of the TEAMS platform, the teachers were not accustomed to its daily use for teaching. In addition, the activities, materials and dynamics that the teachers had were designed for face-to-face and not for virtual platforms. By the fall 2020 semester, some skills were already in place for emergency remote education. In addition, during the summer of that year, more workshops were given, not only on the use of TEAMS, but also to learn about other useful tools and dynamics for distance education.

Contextual Characterization: November 2020

The fall 2020 semester was the second school term in which students attended their classes remotely. However, it was the first to have this modality from start to finish, since the previous period -spring 2020- began in person and ended online. In November 2020, no vaccines against COVID-19 had been applied in Mexican territory and the return to normality was totally uncertain.

Contextual characterization: May 2021

The first semester of 2021 was the third period where emergency remote education was implemented. By May 2021, the COVID-19 vaccines had already begun to be applied to some sectors of the population, including teachers and older adults. The student population still did not receive vaccinations. However, this was known to happen over the next several months. In this way, the end of emergency remote education was perceived closer and closer.

Methodology

Type of study

The study is quantitative, non-experimental, and longitudinal of trends (Hernández Sampieri et al., 2016), aimed at finding differences at two different times in the same population.

Participants

In this study, two groups of students from the undergraduate educational program of Foreign Trade participated. The first of them was made up of 367 students, who were surveyed in November 2020, that is, during the fall 2020 school term. The second was made up of 82 students from the same academic program, who were surveyed in May 2021, that is, during the spring 2021 school term. Students issued their responses for this study on a single occasion. That is, those surveyed the first time did not participate in the second data collection. Table 1 presents the characterization of the participants at both moments.

Table 1. Participants in this research.

Surveyed in November, 2020	Number of participants	Total =367 (64% of them studied in terms from 1 to 5, 36% of them studied in terms from 6 to 10).
	Shift	Morning = 223 participants (60.8%) Evening = 144 participants (39.2%)
	Age	Mean= 20.76 years Std. Deviation=2.33 years
	Employment status	Employed = 158 participants (43.1%) Unemployed = 209 participants (56.9%)
Surveyed in May, 2021	Number of participants	Total =82 (64.6% of them studied in terms from 1 a 5, 35.4% of them studied in terms from 6 a 10).
	Shift	Morning = 43 participants (52.4%) Evening = 39 participants (47.6%)
	Age	Mean= 21.21 years Std. Deviation= 4.6 years
	Employment status	Employed = 45 (54.9%) Unemployed = 37 (45.1%)

Source: The authors.

Instrument

The questionnaire that was administered had ten questions. Table 2 shows the wording of each one, as well as its response scale. The instrument was implemented electronically in Microsoft Forms and the generated hyperlink was distributed through Microsoft Teams.

Table 2. Data Collection Instrument.

Id	Question	Possible answers
P1	I would like to continue taking online classes at the end of the lockdown.	Five-point Likert Scale 1= Totally disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Totally agree
P2	After the lockdown, I would like to continue taking my practical subjects online.	
P3	I would like to continue having the recordings of my classes available for later viewing.	
P4	I would take my classes online if the cost was cheaper than face-to-face classes.	
P5	I would like to be able to decide whether to take a course face-to-face or online.	
P6	At the end of the lockdown, I would like to take my theoretical subjects online.	
P7	After confinement, subjects should be a blend of face-to-face and online sessions and activities.	
P8	The initiative to strengthen the technological skills of university students should be fostered.	
P9	The initiative to strengthen the computer security of university students should be fostered.	
P10	At the end of the lockdown, I would like to continue using Microsoft	

	TEAMS as a support tool for the subjects.	

Source: The authors.

Instrument validation

The questionnaire used in this research was previously presented in Flores-Pérez et al. (2022). In this work, validation was carried out by experts with the support of five judges who initially evaluated 20 questions in relation to their relevance, structure and language. Of the 20 original questions, only 10 obtained the lowest number of suggestions from the judges, as well as the best scores according to the criteria of Tristán (2008). At the time, there were no additional reviews with the judges, nor was a pilot test carried out due to time constraints and the virtual modality of the investigation, which began in 2020 during one of the most critical moments of the pandemic. Thus, the authors considered that the 10 resulting questions represented the interests of the study, as well as its exploratory intent.

In order to be able to make the comparisons, the instrument was maintained without substantial changes that would alter the meaning of the questions. However, some minor wording adjustments were made to reflect conditions prevailing in 2021.

Procedure

In November 2020, as part of a funded research project, the collection of perceptions about education in the post-pandemic was carried out. The results were disseminated in Flores-Pérez et al. (2022). For the present investigation, only the data from the Foreign Trade educational program collected in that study were taken and compared with those collected later, in May 2021. That is, the same instrument was applied to other different students, but enrolled in the same educational program in order to compare them.

Hypotheses raised

For this study, the following statistical hypotheses were raised:

H0: There are no differences between the perceptions collected in 2020 and 2021 about the face-to-face return to school.

H1: There are differences between the perceptions collected in 2020 and 2021 about the face-to-face return to school.

Data analysis

For data analysis, Microsoft EXCEL and the JASP statistical program (JASP, 2022) were used. The techniques used are summarized below.

First, the data set was inspected. It was verified that there were no missing or invalid data, which was achieved thanks to the configuration of each question in Microsoft Forms. The responses were coded since they were in text string format and numerical codes were required for the analysis. This was done with the “Find” and “Replace” functions built into Microsoft Excel.

The data set was then exported to JASP, where responses were explored. This was done through the descriptive values: mean, median, standard deviation, interquartile range (IQR), minimum and maximum values, and the Shapiro-Wilk (S-W) normality test. When it was observed that the data set did not meet the assumptions for performing a Student's t test, it was decided to perform the Mann-Whitney test and use a confidence level of 95% to evaluate the resulting P value, as well as the range correlation. biserial to analyze the size of the effect. Finally, it was also decided to calculate the Bayes factor as an additional way of analyzing the evidence and probabilities in favor of the research hypothesis.

Results

The descriptive statistics of the responses are presented in Table 3, where it can be seen that none of the responses analyzed had a normal distribution according to the Shapiro-Wilk test (S-W), since the P values were less than 0.001. Likewise, it is verified that the minimum and maximum values were 1 and 5 respectively for all the responses collected in both groups analyzed, and that the median of the responses was between 2 and 4.

Table 3. Summary of collected responses.

Id	Group	Median	Mean	Std. Dev.	IQR	S-W	Sig. S-W	Min.	Max.
P1	2020	2.000	2.597	1.401	3.000	0.868	< .001	1.000	5.000
	2021	3.000	2.890	1.548	3.000	0.850	< .001	1.000	5.000
P2	2020	3.000	2.711	1.290	2.000	0.896	< .001	1.000	5.000
	2021	3.000	2.780	1.388	2.750	0.887	< .001	1.000	5.000
P3	2020	4.000	3.433	1.136	1.000	0.864	< .001	1.000	5.000
	2021	4.000	3.634	1.262	2.000	0.834	< .001	1.000	5.000
P4	2020	4.000	3.553	1.238	2.000	0.880	< .001	1.000	5.000
	2021	4.000	3.549	1.288	2.000	0.860	< .001	1.000	5.000
P5	2020	4.000	3.962	1.007	2.000	0.828	< .001	1.000	5.000
	2021	4.000	4.146	0.918	1.000	0.811	< .001	1.000	5.000
P6	2020	3.000	3.305	1.241	1.500	0.896	< .001	1.000	5.000
	2021	3.500	3.378	1.214	1.750	0.903	< .001	1.000	5.000
P7	2020	3.000	3.177	1.260	2.000	0.904	< .001	1.000	5.000
	2021	3.000	3.207	1.255	2.000	0.907	< .001	1.000	5.000
P8	2020	4.000	3.924	0.816	0.000	0.821	< .001	1.000	5.000
	2021	4.000	3.927	0.813	0.000	0.794	< .001	1.000	5.000
P9	2020	4.000	3.973	0.782	0.000	0.796	< .001	1.000	5.000
	2021	4.000	3.902	0.780	0.000	0.822	< .001	1.000	5.000
P10	2020	4.000	3.820	1.032	1.000	0.824	< .001	1.000	5.000
	2021	4.000	3.939	1.081	2.000	0.828	< .001	1.000	5.000

Source: The authors.

Table 4 shows the results of the comparison with the Mann-Whitney test, as well as the effect size indicators. It can be seen that none of the comparisons was statistically significant; that is, all the values of Sig.(P Value) were greater than 0.05, so it was not possible to establish any difference in the groups analyzed.

Table 4. Comparison between the responses collected in 2020 and 2021.

	W	Sig. (P Value)	Correlation Biserial Rank	Correlation Biserial Rank (Effect Size)
P1	13461.500	0.125	-0.105	0.070
P2	14664.500	0.713	-0.025	0.070
P3	13149.500	0.061	-0.126	0.070
P4	14916.500	0.899	-0.009	0.070
P5	13561.500	0.138	-0.099	0.070
P6	14652.000	0.702	-0.026	0.070
P7	14972.000	0.943	-0.005	0.070
P8	14988.500	0.952	-0.004	0.070
P9	15891.000	0.373	0.056	0.070
P10	13901.000	0.250	-0.076	0.070

Source: The authors.

On the other hand, the values of the Bayes factor for each question in the questionnaire are found in Table 5. All these values provide moderate evidence in favor of the null hypothesis, which refers to equality in the comparisons and not in favor of the alternative hypothesis, which alludes to the existence of differences (Goss-Sampson, 2020).

Table 5. Bayes Factor values calculated for each set of responses.

ID	Bayes Factor BF_{10}
P1	0.197
P2	0.138
P3	0.213
P4	0.126
P5	0.207
P6	0.137
P7	0.119
P8	0.129
P9	0.144
P10	0.165

Fuente: elaboración propia

Discussion

The results revealed that there is no evidence to conclude significant changes in the perceptions studied. This was indicated by the results of the hypothesis tests for each of the ten questions. In addition, this is confirmed by the Bayes Factor values, according to which the collected data provide moderate evidence in favor of the null hypothesis and not in favor of the research hypothesis (Goss-Sampson, 2020).

In this way, the findings show that the participants did not agree to continue taking all the classes online, nor only those of a theoretical or practical nature, nor to be part of a hybrid model. However, the participants would like to have the power to decide whether to take subjects online or in person, and they would positively value the fact of having the recordings of the classes to consult them when necessary. Likewise, they would agree to continue using Microsoft TEAMS as a communication and support tool for the subjects they are taking at any time.

On the other hand, the participants expressed the importance of strengthening the technological skills and the level of computer security of university students through institutional activities designed for these objectives. Finally, it highlights the fact that students would choose to take courses online if this decision represented a saving for them. In other words, the financial aspect

could influence the choice of modality to study the subjects. This, however, is a topic that requires further investigation.

The results have clear practical implications, as they provide a contextualized picture of student sentiment that the educational administration could use. This leads us to reflect that the educational program in which the participants were enrolled was designed for face-to-face; thus, it is understandable that students wanted to return in person instead of continuing with classes online. In this way, this could not be interpreted as a failure of remote activities. On the contrary, the experience with online activities could lead to an educational program (course, diploma, specialty, professional career or postgraduate) related to Foreign Trade that could be offered at a distance, for a different target audience. In this sense, it is also relevant to consider that students wish to have the autonomy to decide whether to take a subject online or not, and, on the other hand, that the cost of enrollment could influence this decision.

Another important aspect to highlight is the willingness of students to continue using technology in their learning. Along the same lines, students want to strengthen their technological skills and their computer security. These detected predispositions should be used from within the institutions in post-confinement education.

For a correct interpretation of the results presented in this article, it is necessary to identify the limitations of the study. In this regard, it should be considered that the students were not chosen systematically, but rather they decided to participate of their own free will in response to a massive invitation. It should also be noted that the second group was considerably smaller than the first and that the study design was not longitudinal. Thus, both groups are different and independent and were surveyed at different times. However, even under these conditions, the responses remained homogeneous.

Our findings are in line with those reported by Sahbaz (2020) and Zagkos et al. (2022), since the students expressed their desire not to continue with remote education at the time of the investigation. On the other hand, the results are opposed to those of Podlogar and Juriševič (2022), since in our case we did not find differences in student perceptions in both groups and moments analyzed.

Conclusions

This article presented the characterization and comparison of student perceptions about post-confinement education at two different moments. It was found that the perceptions remained unchanged in the fall of 2020 and spring of 2021. Likewise, it was observed that the students wanted to return to face-to-face activities, continue with the use of technology and strengthen their technological and cyber security skills. The students positively valued the power of decision to choose the modality in which they would take their subjects and considered enrolling in online subjects if their cost was lower than the face-to-face ones.

Future lines of research

The study of student perceptions should continue, even now in the face-to-face stage, as contextual conditions continue to change and students may be willing to accept hybrid or fully online activities. In this process, qualitative or mixed research approaches could be adopted and not only quantitative. In addition, students are fundamental actors in educational processes, so their opinions and perceptions should be taken into account in the design of institutional strategies. In this sense, it is also pertinent to study student perceptions and their consistency and contributions in the development of educational policies.

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