PERCEPTION OF THE USE OF DISRUPTIVE TECHNOLOGIES IN THE TEACHING-LEARNING PROCESS DERIVED BY SOCIAL CONFINEMENT IN STUDENTS OF BASIC CYCLES OF THE FACULTY OF MEDICINE AND SURGERY, URSE

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Derived from the social confinement by SARS-CoV-2, educational environments in online mode have allowed the development of innovative environments in the processes that facilitate teaching-learning in the training of doctors, a disruption in didactic practices implies changes in the educational context, in the didactic conceptual framework and/or in the educational objectives themselves. The objective of the present study was of an exploratory intention, the approach used in this research was quantitative with a non-experimental and transversal design, with a descriptive scope to know the perception of the use of disruptive technologies in the teaching-learning process in students of basic cycles of the Faculty of Medicine and Surgery of the Regional University of the Southeast derived by social confinement. The study starts from an exploratory intention of addressing the teaching and learning process in educational practice during the virtual modality, the approach used in this research was quantitative with a non-experimental and cross-sectional design, with a descriptive scope, carrying out a study of the perception of subjects who use disruptive technologies in synchronous and asynchronous classes in the indicated academic period (January-April/2022). In conclusion, we can say that medical training requires teachers to use innovative teaching strategies to achieve significant learning.

Keywords: Medical teaching; disruptive technologies; COVID-19; Mexico.

1. INTRODUCTION

Disruptive technologies are defined as those that lead to the appearance of products and services that employ a disruptive strategy versus a sustainable strategy to compete against a dominant technology, it is considered an innovation that supports the creation of a new value network and that eventually disrupts the current market by displacing an older technology [1,2]. The introduction of disruptive technology in teaching is consistent with the need to adapt it to the new type of student who needs to be trained in the technological revolution derived from social confinement and which has a transverse transforming

effect throughout society. Digital systems provide students with the possibility of expanding their education and accessing it independently, which allows them to dedicate face-to-face (or virtual) classes with the teacher to the most analytical aspects of the subjects [3]. Academic training at the level of Latin America and specifically higher education, are verified by finding teaching methodologies and strategies to enhance online teaching and education [4]. It has been conducted to strengthen the teaching and learning process, using disruptive technologies with collaborative platforms, as a means for the introduction of interactive and innovative content in educational training [5]. Faced with the health emergency caused by the coronavirus at the end of 2019 and given the recommendation of the authorities to suspend face-to-face activities, it brought with it the use of technological means, which for many (teachers, students, and institutions) were unknown. The universities began with the implementation of distance classes using the knowledge and technology available at the time. The adaptation process had its difficulties in its first moments, however, the immediate training of teachers and students in new technologies offered a path to travel for two academic periods. Universities as a study center are subject to educational dynamics, promoting the production of knowledge among their fundamental tasks, for which the training and preparation of their medical students at the service of a more competitive and developed society is an urgent goal [6]. Teaching processes must be adjusted to technological innovations, in such a way that both academic staff and teachers are trained and updated in Information and Communication Technologies (ICT), with this, educational institutions, according to their cultural, economic, technological particularities, educational reforms are being assumed for their integration to the new disruptive technologies [7]. The objective of the present study was of an exploratory intention, the approach used in this research was quantitative with a non-experimental and transversal design, with a descriptive scope to know the perception of the use of disruptive technologies in the teaching-learning process in students of basic cycles of the Faculty of Medicine and Surgery of the Regional University of the Southeast derived by social confinement.

2. MATERIALS AND METHODS

The research was carried out in the context of the teaching and learning process at the Faculty of Medicine and Surgery of the Regional University of the Southeast, Oaxaca, Mexico.

A study was developed for the students of basic cycles of the degree in Medical Surgeon, with a target population of 434 students in the academic period January 2022 to April 2022, it is worth mentioning that as a selection criterion only those students who decided to participate by answering the questionnaire were considered.

The study is based on a descriptive intention to address the teaching and learning process in educational practice during the virtual modality. The approach used in this research was quantitative with a non-experimental and cross-sectional design, with a descriptive scope, conducting a study of the perception of subjects that used disruptive technologies in synchronous and asynchronous classes in the indicated academic period.

The instrument that was used to collect the information was the survey, whose main objective was to determine the perception that the use of disruptive technologies has in the teaching and learning process in the students of basic cycles, the type of questionnaire was executed with 8 questions on the Likert scale, which was developed in the Google Forms® application. The instrument presented a Cronbach's alpha of 0.825, the execution of the instrument was carried out in the months of March and April 2022, where it was sent to the students by shared link through the corresponding academic coordination.

Statistical analysis was performed through descriptive statistics. Regarding ethical considerations, it was carried out through the protection of personal data with the authorization of the study subjects.

3. RESULTS

Of the total subjects evaluated (n= 434), 67.8% are women while 32.2% are men, with a mean age of 20.47 years (this information corresponded to the first two questions of the questionnaire).

The third question corresponds to the evaluative nature to explore, according to your criteria, the quality of synchronous or asynchronous classes with the teacher in online learning, with this you can estimate the degree of student satisfaction that teachers should improve with the methodology traditional at the time of teaching the subject online, 65.5% are considered satisfactory for this item since their teachers use disruptive technologies with active methodologies and make use of videos, platforms, interactive software or other online teaching resources that allow interaction and participation between student-teacher.

The following question allows us to estimate if teachers use any technological resource to interact in

online classes, where the informants indicated that in synchronous or asynchronous classes, not all teachers use interactive videos, collaborative platforms, or digital applications, or others online teaching resources that encourage interaction or participation between their classmates and the teacher, the study subjects stated that 81.2% consider the use of digital teaching resources to be frequent.

Question five was descriptive, based on what digital tools teachers use in content participation. The respondents mentioned that not all teachers use technologies in their classes, from time to time to carry out an assessment. Regarding participant observation, they stated that some teachers are monotonous when reading the content verbatim, as it is in the text/presentation and with the camera off. However, there are teachers who, if they explain step by step, pausing in the online class, in this way to ask if the explanation is clear and give the option to repeat, on the other hand, some carry out practices in the videoconference to real time, according to the developed content, although not all of them interact with virtual applications (42.7% use Kahoot; 22.8% use Google with all the tool package; 14.6% use a digital whiteboard).

The sixth question was focused on the knowledge about the tools used in the synchronous classes, if the teachers carried out exercises in class or proposed some practical activity, 98.8% of the participants agree that the evaluation of the quality criteria of the tools used by the teacher in activities such as presentations, exercises, practical activities, videos are considered satisfactory. Some content in the presentations is clear; however, it would be necessary to reinforce with practical exercises or interactive activities using virtual applications to share with classmates and thereby facilitate collaborative work in class.

For the seventh question, 77.8% of the subjects agree that teachers carry out activities online with the use of platforms, software, videos, or other technological tools that further favor interaction.

In the last question, 96.5% of the participants consider that their teachers adequately use the Blackboard platform to assign activities, exams or upload relevant information on the subject.

4. DISCUSSION

García-Herrera et al., [8] concluded that the pandemic derived from SARS-CoV-2 favored substantive university processes, academic disruption is a phenomenon that has undoubtedly affected all levels of education, including university and education senior medical. The development of distance education, expressed through emergency remote education, is proposed as an alternative for the solution of interrupted attendance; however, its greatest successes have guaranteed a future perspective, which allows the evaluation of a pedagogy of virtuality, which allows addressing the challenges that may arise in the future [8]. Based on the foregoing, our results indicate that throughout these two academic periods developed in social confinement, they served for teachers and students to engage in virtuality but that, in addition to this, they will seek alternatives that favor the teaching-learning process, regardless of the social, cultural, and environmental shortcomings that are typical of our regional environment. Perera [9], considers that the use of digital technologies only makes sense if their use goes beyond simply serving as tools to replace and extend other technologies, and if they enable a significant redesign of learning activities, to create new learning activities inconceivable with other tools, that is, it seeks to understand digital technologies not only as tools for improvement but also for transformation in the acquisition of knowledge [9]. Flavin & Quintero [10] mention that starting from scratch in technology-mediated learning strategies can lead to the accommodation of disruptive innovation in higher education, since it avoids a mismatch between the technological approaches articulated through strategies in online practice , using technology as a means to foster real-time interaction with students and teachers, disruptive technologies lead to established technologies, therefore, it is a consistent idea that universities at least be aware of these, because otherwise, their strategies run the risk of not being successful in the day-to-day practices of students and teachers. Learning through the network, derived from connectivism, is complex due to exponential growth and the incorporation of various technologies that are oriented from data analytics and promote adaptive and personalized scenarios. Developments towards educational digital ecosystems increasingly transform conventional educational organizations and imply developments in differentiated learning ecologies. A disruption in didactic practices implies changes in the educational context, in the didactic conceptual framework and/or in the educational objectives themselves [11,12,13].

5. CONCLUSIONS

In conclusion, we can say that the training of doctors suggests that the teaching staff use didactic and innovative strategies for the achievement of significant learning, which lead to promoting a more constructivist teaching exercise and significant

learning that will have an impact on students, online classes modify traditional education by establishing their own work rhythm by adapting their studies to proposed schedules to re-watch parts of the video conferences in asynchronous sessions.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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