

Characterization of the current situation in tele-education, telehealth and telemedicine at the University of San Carlos de Guatemala

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Abstract

Introduction: This study seeks to characterize the use of information and communication technologies at the University of San Carlos de Guatemala. As well as the implementation of these technologies in health education of the university population, both students and professors, in order to know the current situation in tele-education and telehealth in the academic units that belong to the health area, such as: the Faculty of Medical Sciences, the Faculty of Chemical Sciences and Pharmacy, the Faculty of Dentistry, the School of Nursing, the School of Psychology. At the administrative level, the documents that accredit the different units of virtual education and everything concerning virtual technologies and their application were reviewed. Some interviews were also conducted. A description was made of the different virtual technologies used in the academic units belonging to the health area. Thus, the study allows for a general overview of the use of information technologies at the University of San Carlos de Guatemala, specifically in the area of health.

Key words: Tele-education; Tele-Health; Telemedicine

Resumen

Caracterización de la situación actual en teleeducación, telesalud y telemedicina en la Universidad de San Carlos de Guatemala
Introducción: El presente estudio busca caracterizar el uso de las tecnologías de la información y la comunicación en la Universidad de San Carlos de Guatemala, así como la implementación de éstas tecnologías en educación en salud de la población universitaria, tanto estudiantes como profesores. El objetivo es conocer la situación actual en teleeducación y la telesalud en las unidades académicas que pertenecen al área de la salud, como son: la Facultad de Ciencias Médicas, La Facultad de Ciencias Químicas y Farmacia, la Facultad de Odontología, la Escuela de Enfermería, la Escuela de Psicología. Se revisó, a nivel administrativo, los documentos que acreditan las diferentes unidades de educación virtual y todo lo concerniente a las tecnologías virtuales y su aplicación. También se realizaron algunas entrevistas. Se realizó una descripción de las diferentes tecnologías virtuales utilizadas en las unidades académicas pertenecientes al área de la salud. Y es así como, el estudio permite tener un panorama general del uso de las tecnologías de la información en la Universidad de San Carlos de Guatemala, específicamente en el área de la salud.
Palabras Clave: Teleeducación; Telesalud; Telemedicina.

Resumo

Caracterização da situação atual de teleeducação, telessaúde e telemedicina da Universidade de San Carlos, Guatemala
Introdução: O presente estudo busca descrever o uso das tecnologias de informação e comunicação na Universidade de San Carlos bem como a implementação dessas tecnologias na educação em saúde da comunidade universitária, tanto estudantes como professores. O objetivo é conhecer a situação atual da teleeducação e da telessaúde nas unidades acadêmicas que pertencem a área da saúde: Faculdade de Ciências Médicas, Faculdade de Ciências Químicas, Farmácia, Odontologia, Escola de Enfermagem, e Psicologia. Se revisou a nível administrativo os documentos das diferentes unidades de educação virtual e todos aqueles de tecnologias virtuais e suas aplicações. Também se realizou algumas entrevistas e a descrição das diferentes tecnologias usadas nas unidades acadêmicas da área da saúde. Assim, foi possível ter um panorama geral do uso das tecnologias na Universidade, especialmente na área da saúde.
Palavras-chave: Teleeducação; Telessaúde; Telemedicina

Introduction

Distance Education (EAD) allows an increasing number of people not only to have access to content and information, but also to establish contact, despite the possible physical distances. Educação a Distância (EAD) makes it possible for a contingent each time. Most people do not only have access to content and information, but are contacted, despite possible physical distances¹

The World Health Organization (WHO)² considers that in the 21st century the main expectation regarding collective health will be achieved through improved access to resources - of greater or better quality - available to most of the world's population. Regarding the incorporation of technology, the WHO recommends that its members use telematics as a political and strategic instrument in planning and executing health actions.

Distance education (EAD) is a learning modality in which communication and the construction of knowledge can occur with the participation of people in different places and times (2). It can be said that the basic principle of DAE is to allow access to knowledge to anyone, anywhere and at any time. Therefore, a structured process not within the scope of universities that encourages this development is in accordance with contemporary educational needs^{3,4}.

The EAD is an important educational strategy to serve large contingents of students and is carried out as much or more effectively than other forms of exclusively classroom teaching, which also reach a large number of students. It is capable of meeting the current needs for the universalization of education with efficiency and quality, constituting an appropriate resource to make the updating of knowledge generated by modern human science viable and permanent.

Permanent education for physicians in remote areas is necessary to increase confidence and decrease professional isolation, important factors for the establishment of professionals in those areas⁵. Studies carried out in Africa have confirmed that access to permanent medical education, postgraduate updating, short courses and Internet access for distance education are important factors in the establishment of doctors⁶. In Tanzania, it was verified that in remote and rural areas many of the health professionals are called to treat cases for which they are not trained⁷. These professionals see a greater offer of training as a solution to their problems and not an increase in recruitment.

Also with regard to telehealth, there is also a continuous process of incorporation of telehealth resources into the organizational realities of the health area. Universities in their training process need to incorporate this dimension of modernization of the permanent care process through telehealth. Various initiatives are being carried out in this regard.⁸ In Guatemala, the processes of developing telehealth actions are still incipient. However, there are fragmented initiatives in this perspective

This article aims to characterize the current situation in teleeducation, telehealth and telemedicine at the University of San Carlos de Guatemala. With the objective of knowing the current situation of the University of San Carlos de Guatemala in the application and use of information and communication technologies and to determine, in general, the technological resources that the University of San Carlos de Guatemala for the application of information and communication technologies, with emphasis on the use of the Academic Units in the health area.

Method

Initially, the different locations where teleeducation actions take place were identified. Later we searched for documents and analyzes of the information on web sites, and three interviews were carried out with the strategic personnel responsible for providing information in the Virtual Education units, the General Directorate of Teaching, and in the Informatics Units of the Faculty of Medical Sciences and the Faculty of Chemical Sciences and Pharmacy (USAC). These analyzes and interviews were carried out in 2019. Next, a systematization of the data collected was carried out, placing the development of tele-education actions in this context.

Results and Discussion

Historical and contextual outline of the university of San Carlos in Guatemala.

The University of San Carlos de Guatemala (USAC), the largest university in Guatemala, is the only national, state and autonomous university. It was founded on January 31, 1676 in the city of Antigua Guatemala, being called for the first time as: Real y Pontificia Universidad de San Carlos de Borromeo. It is the third university founded in Hispanic America. With the October Revolution of 1944, USAC achieved its autonomy. Its headquarters are located in Guatemala City, in the university city zone 12. It has university extensions in almost all the departments of the country. And with a Metropolitan University Center (CUM) in zone 11 of the city, where the Faculty of Medicine and the School of Psychology are located. Among the first chairs of the University are: Law, Medicine, Theology and Languages. After the earthquakes of Santa Marta in 1773, the university was moved to the capital, and in 1776 the chairs were started again in the New Guatemala of the Assumption.

After the Revolution of 1871, the education took a secular character, and in 1875 Justo Rufino Barrios extinguished the Pontifical University of San Carlos de Borromeo, and created the National University of Guatemala, with the faculties of Jurisprudence, Political and Social Sciences, Medicine and Pharmacy.

In 1907, the faculty schools were: Law and Notary, Medicine and Pharmacy, Midwives, Dental and Engineering. In 1918 the University of Guatemala was created, and in 1920 by decree the following faculties were constituted: Natural Sciences and Pharmacy, Law, Notary and Political and Social Sciences, Medical Sciences and Engineering. After the Revolution of 1944, it was not until October 20, 1944 that the autonomy of the National University was definitively granted and it was renamed: Universidad de San Carlos de Guatemala, and it was designated as the rector of Higher Education. Between the years 1944-1945, the Faculties of Humanities, Agronomy, Architecture and Economic Sciences were founded.

Virtual Health Education, Teleeducation and Telehealth at the University of San Carlos in Guatemala.

Currently, the University of San Carlos de Guatemala has 36 academic units, which are: 10 Faculties: Agronomy, Architecture, Economic Sciences, Legal and Social Sciences, Medical Sciences, Chemical Sciences and Pharmacy, Humanities, Engineering, Dentistry, Veterinary and Zootecnics. 12 Schools: Science and Technology of Physical Activity and Sport, Political Science, Communication Science, Linguistic Science, Psychological Science, Nursing, Teacher Training for Secondary Education, History, Art, Social Work, Graphic Design, Physical Science and Mathematics., 22 Regional Centers: Western, Izabal, East, Petén, Southeast, Santa Rosa, Southwest, San Marcos, Northwest, South, Chimaltenango, Jutiapa, Quiche, Baja Verapaz, Totonicapán, Metropolitan, Sololá, Marine Studies, 1 Mayan Technological Institute of Higher Education, 1 University Technological Institute of Southern Guatemala and a Department of Technology Transfer.

The academic units related to health are: Faculty of Medicine, Faculty of Dentistry, Faculty of Chemical Sciences and Pharmacy, School of Nursing, School of Psychology

The use of information and communication technologies has become essential in all areas of Guatemalan society. And the educational sector cannot be the exception, which is why the University of San Carlos de Guatemala, in the midst of the 21st century, is changing its pedagogical paradigm towards new technological environments of online distance higher education, using global information networks, mobile computing technology, the development of multimedia, videoconferencing and advances in telecommunications. And it has a Virtual Education Unit, whose mission is to offer, advise and support the implementation and development of educational models for higher education, based on information and communication technologies (ICTs). It helps to expand educational coverage to the 22 Regional University Centers, allowing the exchange and transfer of knowledge among all members of the university community who require it.

Virtual Education USAC developed the institutional template Moodle for the University, which has a responsive design compatible with desktops, laptops and mobile devices, as well as being compatible with different web browsers: Chrome, Firefox, Opera, Internet Explorer and Safari.

Moodle Template USAC

Virtual Education Unit

General Direction of Teaching

San Carlos University of Guatemala

- Version 1.0.4 for Moodle 3.5.1.
- Version 1.05 for Moodle 3.6.3 (fixes bug with new chat style)
- Version 2.0.1 for Moodle 3.7 in development (must use Bootstrap 4 and Classic or Boost core).

At the beginning of 2010, the General Direction of Teaching, approved the project called Virtual Communities through which 24 videoconference rooms were equipped, in the different academic units of the university.

At the end of 2011, the Division of Organizational Development (DDO) was created in order to have a central unit that would coordinate connectivity, administration, coordination of activities, etc. The DDO oversees the Virtual Communities project and is responsible for expanding everything related to online education for all academic units on the central campus and for its 22 Regional Centers, thus covering the entire national territory and complying with the Millennium Goals for the 21st century of bringing Higher Education to all and thus favoring technological innovation applied to education, for the benefit of the university population and the Guatemalan population in general.

Currently, each academic unit has its own Virtual Unit, which is responsible for planning, implementing and promoting learning processes in the B-learning, E-learning and U-learning modalities. As well as the use of different virtual platforms. Especially the installation, configuration, updating and optimal functioning of the Moodle Learning Management System.

For all this, the University of San Carlos of Guatemala, has implemented training courses for teachers of all academic units, with the aim that university teachers use effectively and efficiently, information and communication technologies (ICTs), through the development of specific skills to search, select, organize, analyze, use and communicate information in the courses they teach, and develop digital educational materials through the use of ICTs, in different university educational environments where they work.

The academic units of the health area, as they are: Faculty of Medicine, Faculty of Dentistry, Faculty of Chemical Sciences and Pharmacy, School of Nursing, School of Psychology. They have established within their educational process the ICTs, and many of their educational processes use virtual platforms, mainly Moodle. The Faculty of Medicine, especially offers its undergraduate and graduate students virtual courses using Telehealth in their classrooms and auditoriums, thus promoting the exchange of updated health information within and outside the university campus and reaching their regional headquarters, through lectures given by medical specialists and / or the opportunity to witness surgical procedures being performed at the hospital level.

They also work together with the Medical Association to provide their graduates with training and updating programs on topics of health interest, all of which results in a quality professional practice oriented towards prevention and adequate patient care. The School of Chemical Sciences and Pharmacy, as well as the School of Dentistry and the School of Nursing follow the same pattern as the School of Medicine, using the virtual media provided by the University of San Carlos of Guatemala, to develop tele-education programs in health. Likewise, there is an area of the Health Unit on the university's central campus dedicated to promoting healthy lifestyles among students, teachers, administrative workers and the San Carlos population in general, using the different virtual platforms that exist in the academic units to reach all sectors.

Conclusion

It is clear that the University of San Carlos de Guatemala, does not have the infrastructure and technological resources in each of its different regional headquarters, however all the necessary efforts are being made to reach the most remote regions of the Republic of Guatemala in optimal conditions, in order to provide the best education to its students and that they can count on the teachings of the best specialists and teachers in the field of health, although as we said, they are in the most distant regions of the central campus of the university. And it is with the use of these technological tools that we are managing to cut distances and provide a better education, of quality and with the best specialists.

- The Academic Unit of the University of San Carlos de Guatemala, which has a higher degree of development, in terms of infrastructure, application and use of information and communication technologies is the Faculty of Medical Sciences. The Faculty of Medical Sciences is the one that concentrates more students at the graduate level, with a total of 2,160 enrolled; at the same time, it is the one that has more academic offerings: 37 master's degrees, 2 doctorates and 3 specialties, which fully justifies the use of ICTs.

- At present, the University of San Carlos of Guatemala is assembling all the necessary infrastructure so that its 36 Academic Units can design, apply and make use of most of the tools of virtual technology.

- Likewise, it is training its administrative and teaching staff in the techniques of application and use of information and communication technologies. Use of platforms, design of online courses, distance education in digital environments, etc.

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