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Advantages of onlines medical education at the Universidad Veracruzana

Original Article

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SUMMARY

Introduction: *Health sciences, and medicine in particular, are one of the most advanced fields of knowledge and benefitted by the use of modern information technologies, while recording an exponential growth in the number of users, institutions and locations. Our objective was to identify the benefit received by students of the School of Medicine of the Universidad Veracruzana, using the Eminus digital educational platform.*

Methods*: Observational, descriptive, retrospective, cross-sectional study, through the review of the information contained in the forums developed on the Eminus platform.*

Results: *Ten thematic contents of the Eminus platform forums of 2 educational experiences of the general medical curriculum were included; 50 exams of a departmental evaluation with 100% approval rating were documented.*

Discussion: *The use of digital platforms in health sciences at a global level has satisfactory results, the instructional designs must be adapted in order to optimize the use of them. The benefits of online medical education through the Eminus platform were demonstrated for pedagogical purposes and evaluation of the educational process*

Keywords: *EMINUS, departmental exam, Tics, virtual library.*

INTRODUCTION

The use of computer equipment and the Internet has acquired enormous importance in the practice of modern medicine and in the discharge profile of teaching-learning programs of the degree and medical specialties. The profile by Competencies of the Mexican General Physician includes the capacity in the handling of information technology and communication according to the Mexican Association of Faculties and Schools of Medicine. (AMFEM).

One way of approaching processes of educational innovation is through the incorporation of new information and communication technologies (ICTs) that have shown success in teaching; its use in teaching practice implies tackling the problem in an integral manner; the contents, activities and evaluations must be adapted and for this it is necessary to have an instructional design that considers ICTs in an integral way. Different teaching approaches must be considered in the same educational experience, according to the nature of the contents. Self-learning and collaborative work should be encouraged with the help of ICTs, considering its use as an instrument to measure the performance of students and thus close the feedback loop that allows making the pertinent corrections.1

The use of ICTs (information and communication technologies) has been of great help for the development of medical informatics which in turn has resulted in a benefit in the graduation profile of the students of the Health Sciences Area as

well as the professionalization of teachers; it allows to meet the request for the care of our patients who are favored in improving their quality of life.

In the technological context, the participation of the Universidad Veracruzana (UV) has served as the basis for public, commercial and non-governmental organizations of regional or national order to implement Information and Communication Technologies (ICT) to their daily processes. The history of incorporating ICT into the Universidad Veracruzana is long and for its study it can be divided into periods; it can also be analyzed from the study of its technological infrastructure, its information management systems, its institutional technological projects and educational programs.

Among the most important institutional technological projects of the university we can mention the following:

- Infrastructure of the institutional network
- Classroom project
- Multimodality Project
- Virtual University
- Virtual educational experiences
- Virtual library
- Institutional Repository
- Institutional portal of electronic journals- iTunes U

The most important information management systems of the university are:

- My UV
- Eminus
- SIIU Information System

Universidad Veracruzana offers the university community a digital educational platform called Eminus that has improved the teaching-learning process. Eminus is consolidated day by day as a reliable and viable computer system for the teaching - learning process at the Universidad Veracruzana.

In addition, being a virtual platform seeks to give students a tool that allows them to be evaluated from anywhere they are, with an Internet connection, marking a specific time to answer each of the questions where they must meet the answer correct and endorse it with an updated article related to the proposed problem; the economy, the security and the use of ICT by the student are favored.

In Medicine a problematic or hypothetical real clinical case is elaborated and in its evaluation are considered aspects of risk factors, clinical, diagnostic, therapeutic and ethical considerations in deontological and cost-benefit aspects; in each specific case, the student is asked to provide their answers based on an executive summary of a research article rescued from the virtual library of the Universidad Veracruzana, which facilitates the joint resolution among the students according to the guide provided by the teacher; the student is encouraged to use a didactic tool to improve medical education, in such a way that education and research are added; it is considered that the aforementioned factors will have a favorable impact on the discharge profile of the General Physician and, above all, will allow the application of concepts learned in the Faculty in order to improve the quality of life in the health of the individual, the family, the community and the society in which it develops 2.

Departmental examinations allows the student to familiarize himself / herself

/ themselves to be evaluated in an integral and digital way 3 as it happens in the General Exit Examination of the Degree (EGEL) as it is done to the Physicians that attend some Specialty endorsed by the Universidad Veracruzana 4. The utilization of computer resources also brings the benefit of not using printed material that generates spending on resources.

The objective of this study is to identify the benefit received by the students of the Veracruz Region School of Medicine when using the Eminus digital educational platform. Specifically, it seeks to evaluate the use of the Eminus platform in sociomedical educational experiences, describe the results obtained in the application of departmental exams in Eminus, as well as identify the benefits in medical education through the insertion of online departmental evaluations that use the Eminus platform and the use of the Virtual Library.

This investigation was developed according to article 17 of the Regulation of Investigation in humans of the Mexican Law of Health, considering it like "without risk"; during the application of the survey the participants were not subjected to any procedure that put their life and health at risk. When requesting the student personal information, the confidentiality of the data collected was guaranteed, with access to the data only by the researcher and the director of the investigation. The rules of the Declaration of Helsinki were respected at all times according to the last modification published by the Assembly of the World Health Organization in Fortaleza, Brazil, in 2013, as well as the rules of the Committee of Inquiry and Research Ethics of the Campus Veracruz School of Medicine of the Universidad Veracruzana.

METHODS

It was an observational, descriptive, retrospective, cross-sectional study, we reviewed information contained in the forums developed on the Eminus platform of two educational experiences of the Sociomedical Academy (Bioethics and Sociodemography) of the Veracruz Region School of Medicine of the Universidad Veracruzana.

The student was informed about the possibility of using the Eminus educational platform; students enter with their password and access code, identify the corresponding course in their portal and are located in the forums section of the corresponding educational experience; once they enter the educational experience, they learn the instructions to performing the departmental exam online; the student in the forum knows when the document that contains the information that must attend and resolve is available; also knows the closing date of the forum, so that they fulfill the content of exams.

Once students open the forum, they can search for articles in the virtual library of the Universidad Veracruzana and, consequently, convert their answer into a research exercise, with the benefit that each student can read in the same forum the answers and a summary of the article on which each one of his colleagues was based to answer his examination.

In turn, the facilitator has the privilege of observing in its interface the relationship of the students who have uploaded their digital file in a timely manner with the answers; they can consult the full article that has supported responses. The facilitator feedbacks each

student. Eminus educational platform allows the facilitator-student socialization because it allows messaging by email.

The facilitator can feedback each student and it is very convenient to use the platform when meteorological phenomena that do not allow access to the classrooms has happened; the facilitator has the opportunity to support students who are disabled by a general illness or accident by keeping their participation from home through Eminus. Another benefit is the cost-benefit ratio: not using paper, toner and light power; finally, one of the greatest benefits is that the student has the availability of the use of Eminus from any remote site without having to attend to the faculty to present the departmental exam.

We included students from the Faculty of Medicine who studied the educational experiences of bioethics and socio demography. We proceeded to calculate the study sample (n = 340) using the formula for finite populations, based on the number of students who have completed the educational experiences of demography and bioethics. For this we used the formula:

$$n = N \times Z\alpha 2 \times P \times Q / ((N-1) \times \delta 2) + Z\alpha 2 \times P \times Q$$

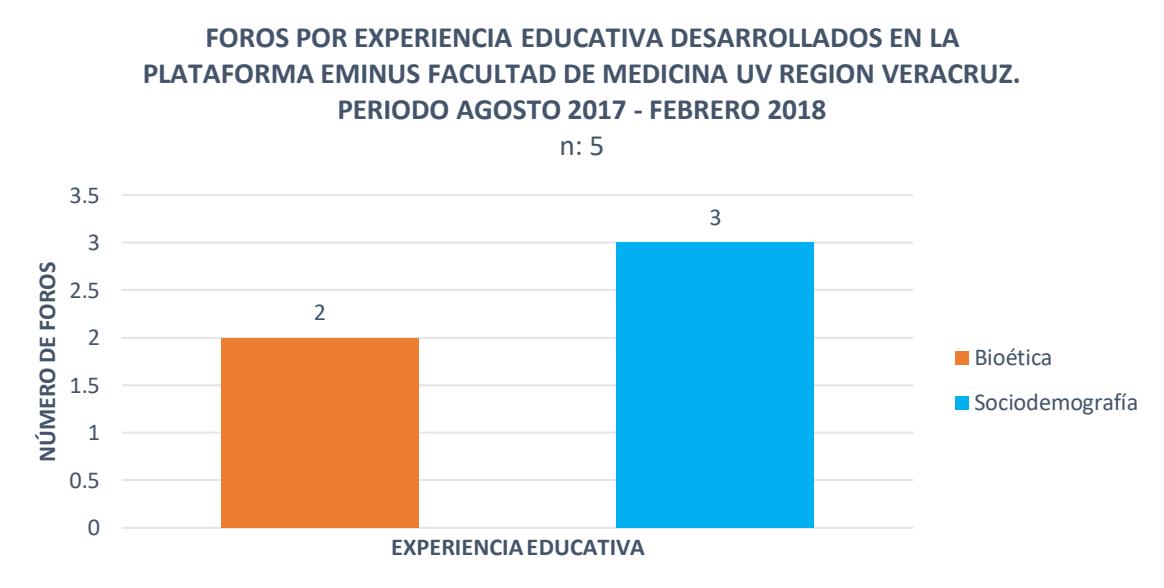
$$n=340x\ 3.8416 \times 0.9x\ 0.1/ ((339) \times 0.0025)) + 3.8416 \times 0.9x\ 0.1 = 99$$

We excluded those students who dropped educational experiencies before starting the course and students who took educational experiences with other teachers. We eliminated from the analysis students who dropped educational experiences during the course of them or who accumulated excessive absences.

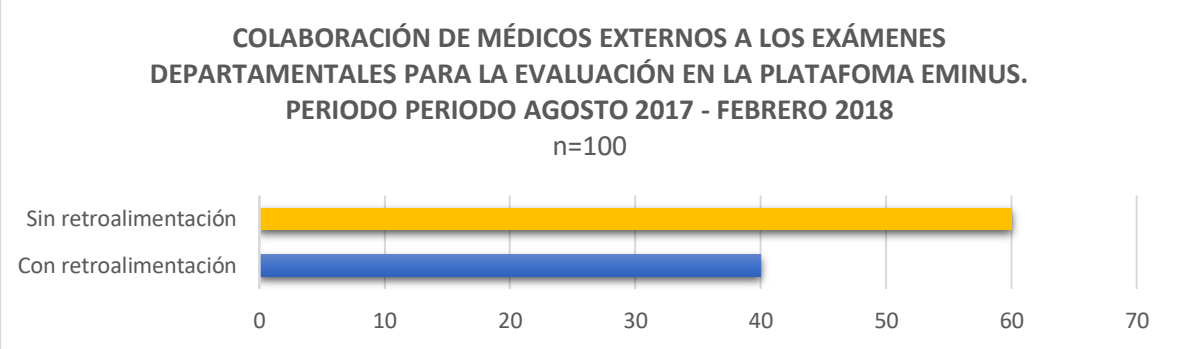
The information was analyzed by means of Descriptive Statistics with estimation of absolute and relative frequencies as well as measures of central tendency (mean and median).

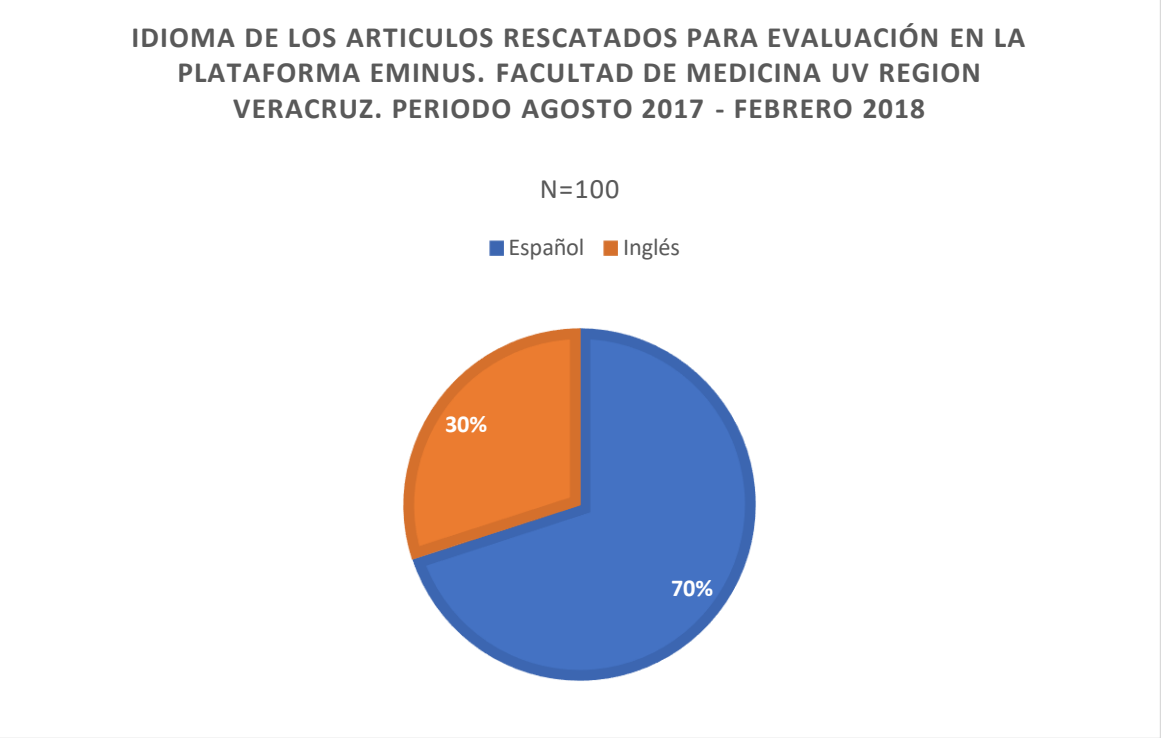
RESULTS

A total of 10 thematic contents of the forums developed on the Eminus platform of two educational experiences (2 bioethics groups and 3 Sociodemographic groups) of the curriculum of the General Physician's degree in a school period were included; there were 100 departmental exams with 100% passing assessment.



Responses from students who participated in 5 forums were documented; a departmental exam was applied to 100 students; a total of 100 bibliographic records of articles rescued from the virtual library were retrieved. We documented a total of 40 comments added by intra and extra medical staff of the Faculty that gave support to students in their responses to each questioning of the departmental exam.





RESULTADOS OBTENIDOS EN LA APLICACIÓN DE EXAMENES DEPARTAMENTALES EN LA PLATAFORMA EMINUS	
Contenidos temáticos desarrollados	10
Experiencias educativas en las que se aplicó exámenes departamentales en línea	2
Grupos de Sociodemografía	3

Grupos de Bioética	2
Alumnos	100
Exámenes departamentales aplicados	100
Porcentaje de aprobación	100%
Fichas bibliográficas rescatadas de la Biblioteca Virtual de la Universidad Veracruzana	100
Colaboración por parte de médicos externos	40 exámenes
Comentarios en el foro realizadas entre los alumnos	100

DISCUSSION

Universidad Veracruzana has a virtual platform called Eminus; however many teachers and students do not konw it, being frequently forgotten by many faculties of the University.

Jorge Sánchez Mejorada Fernández, coordinator of Medical Specialties of the Graduate Department of the Universidad Veracruzana (UV), described as a success the application of the Departmental Exam UNAM-UV to residents of Medical Specialties, which for the first time was conducted online. Interviewed prior to the development of this process in the region, he said that the evaluation represents an advantage because it focuses on each specialty, and above all allowed for a thorough review of the contents. Sánchez Mejorada commented that, being an online exam from the UNAM, in addition to facilitating the process there is an important saving of resources: "This first experience was very good, without setbacks, without a doubt a collective effort in the UV".

There are numerous universities worldwide that use educational platforms. In the medical area, the instructional designs must be adapted in order to optimize the use of them. In the Veracruz Region School of Medicine, the use of the Eminus platform is promoted progressively. 5

Inclusive education represents a different way of approaching education, since from this perspective, pedagogical practices must expand their teaching-learning expectations, using and supporting any pedagogical tool that facilitates the education of the majority of the population. . It is under these terms that the new technologies for learning (NICT)

begin to take an important role in the educational models nowadays.

The technology of communication and information has come to modify the cultural habits of the people, and among them those related to the learning process; it is no longer necessary to go to school because you can receive lessons online through a mobile device such as a cell phone, tablet, laptop, desktop computer or digital television.

The use of Eminus will favor Universidad Veracruzana and its students at several points: it will be of great support in economics, professionalization of teachers, digital skills in medical informatics, personal aspects of work, as well as making it easier for university students to perform exams from any point and optimize time, money and medical update.6

The need for training in the use of Eminus for teachers and students is clear. The benefits of online medical education through the Eminus platform have been demonstrated for pedagogical purposes and evaluation of the educational process. Universidad Veracruzana has always looked for innovation and competition, in order to get excellence. However, many faculties can not take full advantage of the platform and have difficulties in their certification processes, due to the lack of knowledge of ICTs.7

Technology must be used in a responsible manner and for the benefit of the human being. It is hoped that this work will serve as the precursor of a new era of departmental examinations through EMINUS platform, thus encouraging its use.8-9

If EMINUS platform were used at 100% it would result in significant economic savings for the Universidad Veracruzana; it would also support for sustainability reducing the use of paper, ink, and electricity. In addition, this would help to encourage innovation and attract the attention of national and international universities.

It is necessary to conduct courses to train teachers and students to achieve mastery of the EMINUS platform, as well as increase the application of departmental exams online. Each semester the teacher must be able to deliver or show how to use the Eminus platform regardless of what educational experience this imparting. In addition, it must be able to apply study techniques that include the virtual platforms of Universidad Veracruzana.10 We invite the student to get involved in a social participation through solution or improvement initiatives; Using this information, students improve their learning abilities.

In the last semester, Academic Training Program (PROFA) performed two inter-semester courses in our Faculty, with the assistance of professors from various academies of knowledge generation, which will favor teacher professionalization Both courses were developed in person and complemented with the activities and resources of Eminus.

In conclusion, we quote the comments made by the UV rector, Sara Ladrón de Guevara: "*Today, space and time are reduced thorugh technological devices of exponential development. It is time to innovate in each classroom, in each class, in each task. We have seen how it has changed the world; information and communication technologies are*

ubiquitous tools that modify our habits and our scope. New technologies are useful and already indispensable "11.

REFERENCIAS

1. Duarte J. Ambientes de aprendizaje, una aproximación conceptual. Revista Iberoamérica de educación. 2012; 29 pp. 97-113
2. Graells, Pere Marqués; Cruzate, Joan Majó. La revolución educativa en la era de Internet. España: Editorial: Wolters Kluwer España; 2013
3. Cabero J. Red Digital [sede web]. Revista de tecnologías de la información y comunicación educativa: acceso 30 de noviembre del 2017. Disponible en: http://reddigital.cnice.mec.es/1/firmas/firmas_cabero_ind.html
4. Eminus sistema de educación distribuida. Manual del estudiante. Universidad Veracruzana. Consultado 28 de octubre 2017. Disponible en: https://www.uv.mx/pozarica/fime/files/2017/05/Manual-Estudiante-EMINUS.pdf
5. Facultad de ciencias biológicas y agropecuarias. Poza Rica-Tuxpan. Especialización en gestión e impacto ambiental. Biblioteca Virtual UV. Consultado 31 octubre 2017. Disponible en: https://www.uv.mx/pozarica/egia/files/2012/10/Biblioteca-Virtual-UV.pdf
6. Torres C. El uso de las TIC en un programa educativo de la Universidad Veracruzana, México. Revista Electrónica "Actualidades Investigativas en Educación". 2011; 11 (Número Especial). Consultado 31 de octubre del 2017. Disponible en: http://revista.inie.ucr.ac.cr/uploads/tx_magazine/uso-tic-programa-educativouniversidad-veracruzana-torres.pdf
7. Hernández R. Meta habilidades de lectura y escritura para un aprendizaje sustentable. Memorias de la Jornada Académica Lectura y Escritura Universitaria. Universidad Veracruzana. Veracruz, Ver. 2011.
8. Hernández R, Cruz N. Eminus: una opción tecnológica para el aprendizaje de lengua. Universidad Veracruzana. Orizaba, Veracruz. 2012.
9. Colunga J, Jiménez J. EMINUS Sistema de Educación Distribuida. [diapositivas]. Dirección General de Tecnología de Información. Universidad Veracruzana. Consultad 7 de noviembre del 2017. Disponible en: http://www.cudi.edu.mx/primavera_2005/presentaciones/alejandro_colunga.pdf
10. Santiago I, et al. Falta de aplicación de herramientas tecnológicas por desconocimiento de su uso por parte del personal docente del Centro de Idiomas de Xalapa. Curso 402: Proyectos Educativos Basados en Tecnología. Universidad Atenas Veracruzana. 2010. Consultado 18 de noviembre del 2017. Disponible en:
11. http://www.slideshare.net/loliscarrillo/proyecto-eminus
12. Ladrón de Guevara S. Palabras Dadas. "Compromisos: ética, pertinencia, calidad y humanismo" Universidad Veracruzana. México, 2016. Pp. 75-81

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