

Entornos Virtuales, potencialidades y limitaciones para la Extensión Universitaria

Virtual Environments, potentialities and limitations for the University Extension

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RESUMEN

El presente trabajo investigativo tiene como objetivo analizar las potencialidades y limitaciones que ofrecen los Entornos Virtuales como productos de la ciencia y la tecnología para la Extensión Universitaria en la Universidad de Guantánamo. Para llevar a cabo esta investigación se emplearon métodos del nivel teórico y empírico que permitieron corroborar la problemática objeto de estudio. Se ofrece además una definición de Entornos Virtuales acorde al nuevo contexto donde estos se aplican.

Palabras clave: Entornos Virtuales; Ciencia; Tecnología; Extensión Universitaria; Potencialidades; Limitaciones; Interacción social; Centros de Educación Superior

ABSTRACT

The purpose of this research work is to analyze the potentialities and limitations offered by Virtual Environments such as science and technology products for University Extension in the University of Guantánamo. To carry out this investigation were applied methods from the theoretical and empirical level that allowed corroborating the problem under study. It also offers a definition of Virtual Environments according to the new context where they apply.

Key words: Virtual Environments; Science; Technology; University Extension; Higher Education Centers; Potentialities; Limitations; Social interaction

INTRODUCCTION

The technology is located in the field of doing, it involves own procedures that do not necessarily have to be specific products. Although the origin of technology is located far back in time (from the stone age) "technical advances that emerged after our birth" are always in our minds.

Virtual Environments represent an important advance of the technology in the sphere of the Informatics and Communications that facilitate to a great number of people the access to social processes by means of the synchronous and asynchronous interaction in the telematics networks, that adapt to the participants needs.

They constitute platforms that favor the social interaction, communication, collaboration and learning, creating an environment where it is possible to manage knowledge (build, share and use) in a favorable context both for who teaches and for who learns through the use of tools that favor the development of skills and competencies.

Among the main characteristics of the Virtual Environments stand out, a friendly and clear interface that facilitates the interaction of the subject with the elements of the Virtual Environment and with other subjects. To widen the access to social processes making dynamic the interaction between subjects in the traditional roles of these processes.

Another fundamental aspect of these Virtual Environments is the technological platform on which they are functionally supported. The platform must be characterized by its interactivity to promote significant and collaborative learning.

Virtual Environments provide interactivity as a variable, which in these environments takes significant characteristics; those that, well used, tend to make the distance irrelevant, because in a virtual and collaborative environment the communication is significant, but it is necessary to take into account that, in order to be promoted the interaction, it is necessary to create a climate that provides cognitive and social support.

The use of Virtual Environments should encourage the beginning of a relevant change in the way of appropriating of knowledge in many social spheres,

supported by the use of technologies. However, these telematics spaces cannot be considered as the top, because they do not guarantee by their own a higher quality learning, neither faster nor more efficient.

DEVELOPMENT

Scientific and technological development is one of the factors that most influences in contemporary society. The world as it is known nowadays, would be impossible without the advances of sciences and technologies that favor the development of productive forces. Science for example unfolds in the context of society, culture, and is in interaction with its most diverse components. Well, what is understood by science.

For (Núñez, 1999b), science is “a multifaceted and complex social phenomenon that, as a specialized human activity, aims at the production, dissemination and application of knowledge and is expressed through a set of features that characterize it”. By its part (Castro, 2001) defines it as “not only a system of concepts, propositions, theories, hypotheses, etc., but also, simultaneously, a specific form of social activity aimed at the production, distribution and application of knowledge about the objective laws of nature and society.”

Science is considered as a complete and coherent system that includes the historically mobile correlation of the parts, the study of nature, society, philosophy and natural sciences, the method and theory, theoretical and applied research. The idea of technique is currently associated with doing, therefore, although to a greater or lesser measure it is backed by knowledge, its primary sense is to perform procedures and products, and its ideal is utility.

In its link with knowledge, the technique evolves and undergoes profound transformations, becoming in this process in technology that for (Mockus, 1983) “is responsible for the systematic search of the optimum within a field of possibilities.”

A in turn (Agazzi, 1996) considers that technology "constitutes that form (and historical development) of technique that is structurally based on the existence of science". On the other hand, (Núñez, 1999a) States that "technology is a practical knowledge that derives directly from science, understood as theoretical knowledge."

The development of Virtual Environments is due to in big measure to the advances in Informatics and Communications Technologies, particularly the progress and improvement of computer and INTERNET networks. Virtual Environment, Virtual Learning Environment, Collaborative Virtual Environment, course/content management system, learning management system, virtual campus, learning/teleformation platform, among others; they are some of the names and definitions that are assigned to them by many authors, among which they stand out (E. Herrera, 2005); (K. Herrera, 2007); (Gámiz, 2009); (Sánchez, 2011); (Ciudad, 2012); (Viera, 2012) and (Lobaina & Sánchez, 2014) among others.

According to the Dictionary of the Spanish Language Tricentennial Edition, (DRAE, 2018a), Environment is considered as a set of characteristics that define the place and the way of execution of an application. At the same time, the virtual term is defined, in the same dictionary (DRAE, 2018b), as: "That it has virtue to produce an effect, although it does not produce it at present, often in opposition to effective or real. Implicit, unspoken. That has apparent existence and not real." These definitions offer a general idea of a Virtual Environment.

The virtual word comes from the Latin word *virtus*, and it expresses strength, energy, that for which the cause is still present - virtually - in the effect. Taking into account the above, for this investigation it is assumed that the "virtual" is not unreal, or illusion, or fantasy, but is in the order of the real.

As a result of the analysis carried out by the authors of the mentioned before definitions for the purposes of this work and in an operative way, it define Virtual Environments, onwards (V.E.) as: socio-cultural-technical-educational exchange spaces configured in telematics networks formed by tools of synchronous and asynchronous communication.

In this definition, Virtual Environments are connoted as sociocultural-technical-educational exchange spaces configured in telematics networks that integrate communication, synchronous and asynchronous tools that, in consideration of the authors of this work, allow the development of social processes.

The analysis of the contributions of (Sánchez, 2011) and (London, 2017) allowed to verify that the synchronous communication tools are those that enable the

development of activities in real time, users must be connected all in the same space of time, among which can be point out the chat, audio and video conferences. On the other hand, the asynchronous are those in which the subjects do not necessarily have to coincide in the same space of time, for example, blogs, wikis, forums, email among others.

The review of several bibliographical sources among which stand out (Belloch, s. F.); (Mazorra, 2009); (Pacios, Arenas, Lamelas, & García, 2009); (Ricetti & Chiecher, 2012); (Castillo, 2014); (Oses, 2015); (Meneses, 2017); (Mermoud, Ordoñez, & Garcia-Romano, 2017) allowed the determination of fundamental characteristics of the E.V. that favor or to some way may affect the University Extension assumed, after consulting the criteria of some actors such as (G. González, 1996); (M. González, 2002); (C. González, 2004); (Pérez, 2005); (del Huerto, 2007); (Rodríguez, 2009) and (Acosta, 2014), as a process aimed at promoting a general integrated culture in the intra and extra university community to contribute to their cultural development.

Being a completely virtual environment, subjects do not need to move to participate in extension activities mediated by V.E. what favors a greater participation in these activities, unlike the traditional extension model in which they have to move to the place where the activity is going to be carried out which implies a greater expenditure of resources. In Virtual Environments, the Internet is responsible for connecting them from a computer or mobile device, regardless of geographic location.

When performing face-to-face activities, people need to organize according to the established schedules to go to the place where it is carried out. Precisely one of the most advantageous characteristics of Virtual Environments is the schedules flexibility because they can be accessed at any time according to the time, interest and availability of the subjects. This feature favors subjects who have little flexible schedules, live in more faraway regions or perform other activities throughout the day to participate in extension activities.

They require a minimum investment, which is one of the potentialities of the activities mediated by V.E. in relation to the face-to-face. In order to carry out face-

to-face activities, it is necessary to invest a much greater amount of financial and human resources in getting the place to do them, buying the necessary materials and resources, when compared with the expenses when performing them in a virtual way in which only some means are needed like computers, cameras, microphones among others.

The activities can be carried out synchronously and asynchronously, it is another characteristic of V.E. that favors the interaction of the subjects because they do not necessarily have to be connected in real time to be able to participate in a certain activity. These can be done in both ways simultaneously and the subject chooses which one is more convenient to participate taking into account the characteristics of his device and the Internet connection he has at that time.

The activities can be carried out in face-to-face and semi-face-to-face is another of the potentialities offered by V.E. to facilitate the realization of social processes in both ways simultaneously which would favor participation in extension activities by being able to interact in both ways in parallel.

Considering these characteristics, the Virtual Environments offer, without a doubt, important potentialities for University Extension at the University of Guantanamo, but also as a technological resource of social implementation they are not exempt from confronting problems that may constitute limitations as a result of the dependence they have of the technological support in which they are supported for its implementation, affecting the positive in its conception as tools of the Informatics and Communications Sciences.

The analysis of the potentialities of the implementation of Virtual Environments as a product of ICT allows us to talk about problems of these systems. Since ICT also has its limitations that can translate into problems that somehow restrict its benefits. Among them are presented:

Economic barriers constitute the first element that can limit the use of V.E. because in spite of the progressive cheaper of informatics equipment and programs, its price is still prohibitive for many families. In addition, its rapid process of obsolescence advises the renewal of equipment and programs every four or five

years. In Cuba, these barriers are further increased due to the economic blockade imposed by the United States of America since the 1960s.

On the other hand, the population's unequal access to technology is another possible limitation that results in problems in Internet access, which is a primary condition for interacting in V.E.

As it is proposed, the subjects do not have to travel and can even choose the best time to participate, but they need to pay attention to the Internet connection and its speed in the chosen place because in Cuba there are still areas in which the connection is slow for the reason that the bandwidth is not homogeneous throughout the country since the equipment at the national level does not have the same quality and others in which it is practically null due to the geographical characteristics of the region that do not allow technology to be taken to there.

This is because Cuba is an economically blocked country, the prices of equipment are high, since it must be acquired through third countries, which causes an increase in its cost, limiting the facilities to buy more equipment and with more quality as well as decrease the population possibilities to obtain them, that is why the State places these technologies in educational centers at all levels, the Young Computer Club among other institutions to facilitate the access to them of a greater number of subjects.

By on the other hand, Cubans have a low percentage the possibilities of having at home the necessary equipment, this would cause limitations in general way in the interaction with extension activities through V.E. once they have been implemented, it constitutes a problem for them.

The “delay” effect in real-time audiovisual communication is a problem resulting from the speed of Internet connection that causes slow transmission of audiovisual information and that it arrives in real-time with difference from the sender to the receiver, sometimes distorting the message.

Technical limitations: disconnections, inaccuracies are associated with incompatibilities between various types of computers, tablets, smartphones and operating systems, the bandwidth available for the Internet, the insufficient speed of processors to perform some tasks (improved voice recognition, translators

automatic among others) that may interrupt the development of extension activities mediated by V.E. that are taking place at the time these failures occur that also contribute to generate the following problem.

The unexpected interruption of communications that can be caused by various reasons such as frequent failures in servers and the rest of the equipment caused by a bad manipulation or failures in the electrical supply that can provoke breakages in the equipment (switches, routers, computers, cables, antennas, among others) either in the hardware or in the software, so its incidence would be much more negative if it occurs at the time when an extension activity mediated by V.E. is carried out.

Depending on the place where the unexpected interruption of communications occurs due to a failure in the electricity supply, it may totally or partially affect the development of extension activities mediated by V.E. for example if it occurs in the place where the activity originates or where the central servers in charge of linking the telematics networks of the different institutions and educational centers of the country are located, the affectation would be total, which would cause the immediate ending of the activity, however, if it originated in one of the interconnected institutions, the affectation would be partial since only the equipment in that geographical area would be disconnected.

The aforementioned demonstrates the importance of telematics networks in the implementation of sociocultural-technical-educational exchange spaces in the University Extension and the facilities they provide by enabling synchronous and asynchronous communication between subjects who interact in extension activities mediated by E.V.; implicitly it can be seen that in spite of the potentialities and benefits of such networks, problems related to the advances of science and technology that limit partially or totally the interaction between subjects in these environments can occur.

Since the University Extension, multiple activities such as the University Book and Reading Festival in which book presentations and literary debates are produced. The potentialities of V.E. can be used in these activities for example through the use of video and audio conferences, online forums, which would allow students

from other universities and people from other communities to participate without having to travel to the place where these activities take place.

As a result of this research, it is shown that the insufficiencies raised can be resolved in favor of their total or partial eradication by confirming that the limited use of the Information and Communications Technologies in extension work at the University of Guantanamo to favor the link University-Society can transform and achieve a substantial increase in the use of these technologies.

Consequently, the little use of the potentialities offered by the Virtual Environments for the development of the extension work at the University of Guantanamo in the process of interaction with the community declared as insufficiency that motivated the realization of this work is shown to be soluble with the use of sociocultural-technical-educational exchange spaces configured in telematics networks.

CONCLUSIONS

In the present work are addresses the potentialities that reports the use of Virtual Environments as technological products and of Informatics and Communications Sciences for the development of University Extension as a social process. They also relate and analyze the possible limitations that are given to a greater extent by the technology that supports these telematics spaces, so it is shown that:

The use of the potentialities and benefits provided by Virtual Environments for the University Extension at the University of Guantanamo favors its social impact on the cultural development of the intra and extrauniversity community by enabling the access of a greater number of people to extension activities without taking into account space-time differences; in spite of the possible problems that can be confronted from the technological point of view soluble by means of the suitable use of the scientific-technical advances in the Informatics and Communications.

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