Las TIC como instrumento pedagógico en la educación superior

ICT as a pedagogical tool in higher education

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Resumen

El propósito de este trabajo es citar autores importantes en la historia de la educación y estructurar una línea de tiempo de lo general a lo particular, destacando los aspectos de la educación superior y las posiciones de la incorporación de las Tecnologías de la Información y la Comunicación (TIC) en la sociedad, las instituciones de educación, empresa y el Estado. La participación de la educación en México para incorporar las TIC en la Secretaría de Educación Pública (SEP) ha ayudado a definir las estrategias de enseñanza implementadas en el país. Además de señalar la globalización y la interdependencia mundial entre los países y el impacto en todo el sistema educativo, los convierte en desventaja con el primer nivel. Por último, se analizan las TIC y su integración con nuevas formas de educación desde el aprendizaje electrónico hasta la combinación de modalidades.

Palabras clave: Aprendizaje, e-learning, interdependencia, educación.

Abstract

The purpose of this work is to quote important authors in the history of education and structure a timeline from the general to the particular, highlighting aspects of the higher education and the incorporation of Information and Communications Technology (ICT) in society, Educational Institutions, Industry and the State. The participation of the education in Mexico to incorporate ICT in the Secretariat of Public Education (SEP) has helped to define teaching strategies implemented in the country. In addition to noting the globalization and world interdependence among countries and the impact on the entire

educational system, turns them into disadvantage with the first level. Finally, ICT and their integration are analyzed with new forms of education from e-learning to the combination of modalities.

Key words: e-learning, learning, education, interdependence.

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Introduction

The knowledge society implies a shared commitment between higher education institutions, The knowledge society implies a commitment shared among Higher Education Institutions (HEIs), companies, the State and society itself, since the requirements are higher.

In this new game, the HEIs acquire an important role since they must respond to the challenges that globalization implies. This should be more than simple places of learning and become places of updating, continuous education, applying strategies to distance learning, committed to research centers that respond to the current problems with an avant-garde vision.

HEIs must be inclusive and participate in the work of politics, economic, culture, environment and society; also, its graduates must have the habit of innovate, produce and transform, from and with the management of science and technology. Without a doubt, this new field involves a challenge.

The HEIs should be temples where the pillars of knowledge are applied in people (learn to: to know, to do, to live together and to be), contributing to the transformation of the human race.

Without a doubt, the challenge for the HEIs is large, but not impossible, referred to as whatever like say to the educational part, constructivism, significant learning, guided learning, competition, or the part of the globalized economy, socialism, capitalism, neoliberalism, the important thing is and will be the collaborative work between the different sectors.

Dr. Inés Aguerrondo (1998, p.15), in his speech at the "Latin America and the Third Millennium Challenge" Congress, in his presentation entitled "Better Quality Education with lower costs" in 1998, said:

Oriented towards the needs of the twenty-first century education system should incorporate a definition of learning as a result of the active construction of the subject of the learning object. It involves an active learner, which develops own assumptions about how the world who should be tested constantly works. It involves the generation of mental operations and practical procedures to keep learning only once he graduated from the formal education system. It also assumes that the teacher and the student explore and learn together, but this exploration and mutual learning can take different forms, from the classroom to the most remote.

Both economic systems, companies and the same building society rested on a "knowledge base", indicating membership in the "era of knowledge." (Toffler, 1995)

In a democratic society the knowledge was considered as most important because of its humanizing value. Knowledge has inherently democratic virtues and therefore can produce creativity, lead to freedom of movement, exchanges, constructive criticism, dialogue, and be used by more people. (Tedesco, 1995)

Since then it is considered to have a school system capable of ensuring their students the opportunity to put knowledge to everyone.

We attempted to link all sectors of society, the apparatus of government and all productive sectors to work to maintain a culture of peace, responsible for organizing the international community, able to solve the problems facing humanity, give a sense of relevance and collaborative work, sharing ideals, human resources and mainly knowledge.

It was essential to consider higher education as a means to resolve regional, state, national and international social problems. The aim was to stop seeing higher education as an expense that did not generate knowledge.

For over 20 years, is envisioned to higher education as a gateway to the knowledge society, perhaps the most important for its unique setting for the generation and transmission of human knowledge door. In the knowledge society, it is predicted that the traditional

university coexist with virtual universities and other forms of university, for example, the "corporate universities" of enterprises, created to meet the demand for continuing education of its workforce in different occupational levels. These universities strong technological base, are characterized by a crosslinked structure and operation, under the principle of bringing education to the individual and not the individual to education. Traditional universities are facing increasingly strong competition from these educational organizations of companies. The challenge is obvious. (Silvio, 1998)

This is the current reality. Governmental and political processes of the country demand that higher education is of quality. To regulate this, agencies are contemplated as accreditors evaluators who will have the responsibility to demand the minimum conditions that should have any educational institution at the time of imparting their knowledge, regardless of whether this college has the means to do so, provided by development policies of each country or extraordinary support for institutions to commit to tasks of the same type. The purpose is to be in the same condition assessment and / or accreditation when these institutions so request.

The national reality is full of cultural, political and generational inequalities. The proposed form of competition between institutions has been uneven, as these did not start at the same time, being in many cases differences ten years or more.

This phenomenon was exploited mainly by private institutions, which are best used the budget and the date of this writing, are better positioned than the institutions subsidized by the education system. These institutions were faced with attitudes of their faculties who did not share his politics; had mostly labor unions that favored stability above the basic functions to be performed by a teacher of this new century.

ICT in education in Mexico

The Ministry of Public Education (SEP) is responsible for regulating the Mexican educational system, which consists of five levels: basic education (pre-school and primary school three years with six years), middle school (high school three years), education upper secondary (high school, bivalent school, technical professional, every three years), higher education (normal technological universities with two years, four years, university degree

and technological institutes with four to five years) and specialty (six months or one year) and graduate (master's and doctoral two years to three years).

All previous levels are supported by Information Technologies and Communication, especially television, radio, video and Internet private.

The origins in Mexico of Information Technology and Communication (ICT) are linked to the systems of distance education and open systems called unschooled, aimed at expanding educational opportunities to geographical areas and sectors of the population without access to education as a means of individual and social improvement. Chronologically, its evolution has been as follows:

In 1921 the Ministry of Public Education (SEP) of Mexico was established. (ANUIES, 2001a); in 1947 the National Institute for Teacher Training SEP was founded with the purpose of training teachers in service through correspondence courses and intensive courses during holiday periods (SEP, 2012); in 1950 the National Association of Universities and Institutions of Higher-Education ANUIES (ANUIES, 2012), that same year, 1950, kicked off the first transmissions of Mexican television (Channel 4 XHTV Mexico) was formalized. Later Telesistema network XHTM Mexican (Televisa, 2012) was formalized.

In 1954 the Latin American Institute for Educational Communication (ILCE) in 1956 ILCE is set in the city of Mexico (ILCE, 2012) was established; in 1955 the National Autonomous University of Mexico (UNAM) produces its first educational and cultural programs. Currently done through Teve UNAM (TVUNAM, 2012) and in 1959 the National Polytechnic Institute (IPN) formalizes the Channel 11 television educational and cultural programming (IPN, 2012).

From 1964 the Ministry of Public Education (SEP) created the Directorate General of Education Audiovisual seeking through the use of media, new educational alternatives in order to abate the educational gap, mainly in rural areas (DGTVE- H, 2012).

In the 1966-1967 school year a pilot model was to use mass media (radio and television) to fill gaps in schools and teachers in rural areas in primary and secondary school was established. In 1971 the model was consolidated as Telesecundaria and extended to all of Mexico; in 1968 the Centers for Adult Education was established, in charge of literacy and primary education offer people over 15 years, which later Centers Adult Basic Education (ANUIES, 2012) were named.

Also in 1971, the company Telesistema Mexican transmitted via satellite to Mexico, the US and Latin America, which changed its name to Televisa-Satellite TV (Televisa, 2012). In 1972, the UNAM established the Open University System (CUAED-UNAM, 2012); in 1974, the National Polytechnic Institute (IPN) established the Open Education System (SEA). That same year, the Directorate General of Technological Institutes (DGIT) SEP implemented the Open Technology System (ANUIES, 2012). From 1977-1987 educational programs between UNAM and the company Televisa (DGTVE-H, 2007) were formalized.

In 1985 he started the Educational Satellite television, in 1985-1995 the Electronic Computer Project in Basic Education (Coeeba) aimed at using the computer in the classroom and familiarize teachers in its use as a tool to support teaching develops (DGTVE- H, 2007).

In 1986 the Instituto Tecnologico de Estudios Superiores de Monterrey (ITESM) receives the signal from the BITNET network of Texas, USA, in 1989 the ITESM sets the first Internet node in Mexico (Islands and Gutiérrez, 2000) and integrates the Interactive Education Via Satellite system (SEIS) (ITESM, 2003).

In 1990 the UNAM establishes the second node of the Internet in Mexico and formalizes the RedUNAM in their fields, in 1992 several Universities and Institutions of Higher Education connected to the Internet founded MEXnet (HIAINT, 2007), in the same year (1992) various educational institutions of Mexico are part of the Ibero-American Educational Television Association (ATEI) along with 20 other countries, in 1993 the

National Council of Science and Technology of Mexico (CONACYT) provides the first link to Internet via satellite (HIAINT, 2007), the same year (1993) videoconferencing network UNAM-RVUNAM (DGSCA-UNAM, 2012) is established.

In 1994 MEXnet networks merged and CONACyT deriving from the National Technology Network (Islands and Gutiérrez, 2000), in 1995 the SEP created the Education Satellite System (EDUSAT) working in conjunction with the ILCE, ANUIES and institutions of Mexico public and private (SEP 2003).

NIC-Mexico (NIC-Mexico, 2012), in 1996 the ITESM Virtual University leaning form of videoconferencing and Internet resources for courses; In late 1995 the Information Center Networks Mexico (Network Information Center of Mexico was created degree, specializations, postgraduate and business training (Amador, 2004).

In 1997, the SEP establishes SchooINet using resources from the EDUSAT system and Internet connections (Red Escolar, 2012); in 1997 the National Videoconference Network for Education -RNVE (Ramirez, 2006) is instituted and in 1999 seven universities in Mexico are the University Corporation for Internet Development (CUDI) in order to use Internet-2 for teaching, research and service (CUDI, 2012).

In 2000 the e-Mexico program is formalized to integrate ICT in all levels of education (e-Mexico, 2005), 2001 SEP and ILCE establish the program SEPiensa average educational portal of basic education and for Mexico and Latin America (SEPiensa, 2012); formalized in 2001 Videoconference Network of the University Corporation for Internet Development (RVCUDI) with 152 members and 7 International Conventions (CUDI, 2012).

In 2002, the UNAM coordinates the National Centre for Interactive Videoconferencing (VNOC) integrating RNVE, RVCUDI, RVUNAM (VNOC, 2012) networks; in 2003 Enciclomedia program starts to equip classrooms with ICT fifth and sixth grade education (Enciclomedia, 2012); in 2003 Mexico CUDI network joins the ALICE (Latin America

Interconnected with Europe) project and is part of the CLARA-Advanced (CLARA, 2012) Civil Association called Latin American Cooperation Network.

In 2004 22 000 computers and whiteboards are incorporated in 11,000 primary schools in Mexico; in 2006 51 000 brand SMART Board interactive whiteboards are incorporated to continue the program Encyclopedia (SmartBoard, 2007).

In 2006, the Mexican Association of Information Technology Industry (AMITI), the National Chamber of the Electronics Industry (CANIETI) and Digital Mexico (FMD) Foundation held a tripartite exercise among industry representatives, academic specialists in the ICT sector and the federal government as responsible for the design and implementation of public policies on the Vision 2020 ICT Industry in Mexico (Neri, 2012).

Thus the process of inserting technological tools in the public school systems in the country began and has achieved so far that the application of the use of these instruments is not by standards for the system, as it still lacks integration of technological tools in the teaching plannings.

Globalization and global interdependence

According ANUIES (2000), in their respective publication, higher education in the XXI century reflects the interdependence among all countries, in addition to the formation of regional blocs, compliance with international treaties, the interaction between economies, communications, labor , and so on. This inevitably affects the entire educational system of a country that is at a disadvantage compared to first world countries.

Gacel (1999) states that opportunities are within Higher Education Institutions (HEIs) in the context of global interdependence, there is the fact of establishing strategic alliances in the cultural and educational field. This is achieved by strengthening programs (PIFI) exchange (scholarships for improvement) and mobility of students (projects as DELFIN) and teachers (research stays at another university), conducting research projects (CONACYT Funds, MIXED) and joint academic programs at levels APO (evaluation committees and

accreditors), undergraduate and graduate networking and collaboration in various fields of knowledge (PROMEP), exploiting comparative advantages of institutions abroad.

On the world stage, Mexican higher education is immersed and forced to compete for trade agreements like the North American Free Trade and joining international organizations such as the Organisation for Economic Co-operation and Development (OECD). This has spurred competition among Mexican universities and other countries, and forced to propose development programs HEIs based on indicators and standards (Gacel, 2000).

However, the process of accreditation of Mexican IES not started at the same time. In some regions of the north of the Mexican republic began this way more out of obligation than conviction for being neighboring United States. Other regions of Mexico in less favorable conditions generated a map of academic inequality that so far has not completely standardized. It is still, notice consolidated accreditation levels and sometimes in the process of starting. (ANUIES, 2000)

Although the process of accreditation of HEIs are national policies, including in development plans since the presidency of Luis Echeverría, the reality is that the habits and customs, achievements and privileges granted the formation of trade unions in our country the lack of vision to compete abroad by our educational authorities, created institutional monopolies allowed only slowly advance the standardization of knowledge, taking advantage of the situation of particular institutions, which were using the economic support that for some decades not were used by the rest of the country's universities (Pérez, 2010).

Currently, having completed higher studies does not guarantee a job. Even developed countries are experiencing a severe shortage of supply of jobs commensurate with knowledge of the candidates, thereby generating discontent in the population because they often have to be used in something other than what they have studied. Informal employment has grown enormously because, among other reasons, companies prefer to rotate their staff in key positions and demanding requirements such as having work

experience at an early age, thereby promoting increased professional entrepreneurs own businesses.

The evolution of ICT and e-learning

The same evolution that has accompanied technologies is reflected in its use in education, giving rise to new forms of education that deserve to be described more accurately. Here are some of the most important in the present moment.

The first is e-learning. It is a platform for distance education, support constructivist education past the behavioral education. This allows the education reaches anywhere in the world and can boost education and interact more with teachers.

One of the new platforms that implements some of the communication tools is called e-learning "electronic learning", which literally translated means electronic learning Spanish. e-learning also uses all or electronic device that can provide information such as satellite network, CD, DVD, interactive TV, among others. (Mendoza, 2003)

This means that e-learning can use any electronic device and tools to design, select, manage, deliver, extend and store data for distance learning exercise. (Mendoza, 2003)

With the constant evolution of ICTs, according to Garcia (2004) platforms have evolved, giving rise to variants of e-learning. One of them is called M-learning "Mobile Learning", product of distance education, which brings together a combination of mobile computing technology and information. This variant arises from the need to inform anywhere wirelessly which can facilitate the sending and receiving information through any mobile form.

The V-learning is another variant of e-learning, whose primary characteristic use of graphics, animations or real characters that show a state of the individual. You can show activities and a development which, in real life, the user is unable to submit various social and cultural factors. (García, 2004)

This variant of learning has been used successfully in forums, combining classroom discussion and role play in places that users themselves designed under commercial or open source platforms; mention any platform can mention Second Life. It is considered that this platform in Latin America will have a major impact upon the bandwidth display increased substantially. (Altamirano, et al, 2007).

The e-learning has been the basis for new platforms for distance education. Hence also comes the b-learning "Blended Learning" which can be translated into Spanish as blended learning (García, 2004). It can also be defined as: blended learning, hybrid, amalgamated, annexed, streaky, interwoven, integrated, dual, bimodal, semi, semi-virtual.

According to Bartholomew (2001, another term for these mixed models is "blended education," which was first used in 1998-1999 in studies of Audiovisual Communication at the University of Barcelona and was subsequently incorporated into the lexicon of other initiatives at the university.

Another antecedent is what Jesus stated Salinas (1999), which he described as "flexible Education" and is in fact the model applied in the "Extended Campus" University of Illes Balears, where virtual systems are used as the video or web, with sessions.

The b-learning is basically an internet communication platform used for education. The b-learning consists of several communication tools as they are chatting, e-mail, forums, wikis, blogs, IP phones, teleconferencing, among other elements (Corona & Pérez Herrera Ship, 2008).

As its name suggests, the b-learning is a combination or mixture of classroom and non-classroom model (remote). Is relative to say no face because students may not always present physically, and still can be assessed as being in class in a classroom. This means that it is a combination, integration, complementation and conjugation means, resources,

technologies, methodologies, activities, strategies and techniques to achieve a complete education and thus have a real commitment to student-teacher. (Bartholomew, 2011)

The University of Malaga in Spain had his first contact with the use of virtual platforms in 2000. For students, this was their first contact with these concepts, but today after continuing since then to date have adopted a mixed method that relies on resources and non-face-to-face, which as far as possible allows flexibility to take right now own model regarding the management of Blended Learning. (Guzman, 2009)

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