# Distance Education in the Form of E-Learning in Chile: Training Human Capital for the 21st Century

doi:10.3991/ijac.v3i3.1372

Daniel Farcas and Marion Reininger
UNIACC University, Santiago, Chile

***Abstract*—The requirements imposed in terms of professional competences, training and employability go beyond traditional education. The introduction of technology helps the process of knowledge and information acquisition, giving access to resources available in the system and developing the skills for research and learning by means of critical thinking. This does not only have an impact on students graduated from secondary school, but also people who live in isolated places because of geography, people who work and are heads of families, handicapped people, among others, giving evidence of a more inclusive and democratic form of education. Therefore, although e-learning is new in our country, it needs to be exploited in relation to its characteristics in order to progress according to the local and global context. Because of what was said above, this essay studies in depth the need for access, coverage and flexibility of the system, and the way in which education at a distance in the form of e-learning can be a contribution for the training of the professionals needed in the country.**

***Index Terms*—Distance education, e-learning, human capital.**

## I. INTRODUCTION

The current scenario of high education in Chile is characterized by its complexity, changeability and unpredictability. In the context of globalization, interrelation between countries, the competence of their economies and the comparison of the academic parameters, have affected the educational institution of our country in different aspects. This considers the infrastructure of these institutions, as well as their careers and their curricular designs, pedagogical formats, the requirements for the teaching staff, and the characteristics of the students, among others.

The growth in the number of students that have access to higher education, together with the rise in the plurality of their characteristics, require both the broadening and the diversification of the academic offer, under the concept of providing more and better education to a greater amount of people. This aims at providing academic opportunities which are more appropriate to meet the characteristics and requirements of the potential students and, at the same time, contributing to the development of Chile, which increasingly requests people with a higher level of qualification. The higher education institutions are impelled to enlarge their contribution to professionalization and modernization of the different disciplines, meeting the demands of the labor market, reducing the length of the programs, as the training period extends for the rest of the professional life, as proposed in the agreements of Bologna (Brunner, 2005)[1].

Based on the fact that the training of the human capital is a requirement for the social and economical development of the country, the higher education institutions are the ones that play a fundamental role in order to meet these demands, giving people the knowledge and skills requested. The ability of researching, creating, processing and transmitting information has become an essential skill which determines productivity and competitiveness not only as an individual but as a society in general and, therefore, has great impact on both the development of each person and of the country as a whole (Castells, 2002)[2].

Having a higher education degree is highly appreciated in Chilean society. According to the data of the survey CASEN 2003, the income difference between a person with higher education and a person without it accounts for 26,2% for those who are graduated from a technical training centre, 10,2% for those graduated from professional institutes, and a significant 73,6% for those graduated from a university (OECD & The World Bank, 2009)[3]. Based on this, it can be concluded that higher education is in fact a key tool for improving the quality of life of the people, aspiring to social mobility and more fairness and equality in the population. Quoting Rodríguez (2009)[4], the role of the higher education institutions refers not only to the creation of advanced knowledge, and the spreading of that knowledge, but also to make a contribution to development and fairness and equality, contributing to the reduction of poverty and the sustainable growth of the country.

The enlargement of the access and the increased enrolment in higher education has had effect on the different social economical groups of the country. It has made it possible for a large number of students (7 out of every 10) to be the first generation in the families to have access to higher education. Evidence can be found of the extension of the possibilities to have access to this level of education in middle-class social economical groups and less fortunate groups. It has also had an impact in gender equality of the students, including different ethereal groups of people that before would not even had thought about the possibility of continuing studying, living their lives under the concept of lifelong learning.

In relation to this last issue about the age of students, it is important mention the distinction of two groups: the net generation and adult students. The so-called net generation was born in a digital context; they manage the different means of communication in a natural way. Eager for interaction, exploration and inductive discoveries, they

look for the practical application of all the knowledge acquired, and they relate with all kinds of multimedia resources, especially audiovisual resources (Oblinger & Oblinger, 2005)[5]. On the other side, adult students are not people who just graduated from secondary school but professionals in the labor market, which demand update of the knowledge and skills previously acquired, despite the limited amount of time they have for studying.

## II. REFERENCE TO THE INTERNATIONAL CONTEXT ABOUT THE E-LEARNING SYSTEM: THE UNITED STATES

Distance education has got objectives which crosscut any teaching-learning process, related to development and mastery of knowledge and skills. It is mainly characterized by the fact that the teacher and the learner do not share the same space, but this physical distance is made up for the link mechanism between the involved parties and the defined contents, if the proper teaching and technological patterns are applied. The implementation of this kind of educational system is inevitably influenced by political, economic and cultural phenomena, so that it is necessary to consider global and local conditions.

When taking into account the potential students of e-learning, the information provided by the United States Department of Education (quoted in Blair, 2009) [6] is very illustrative. A 73% of the North American students correspond to the "non-traditional" category, with characteristics such as being financially independent, full-time workers, single father/mother, etc. They constitute the largest potential population of students. In fact, when considering the age distribution of the students registered in higher education institutions for 2008, according to the National Center for Education Statistic (quoted in the same author), only 14% is younger than 22 years of age, whereas the remaining 86% go from 23 to 50 years of age and more, with 34% between 23-29 and 31% between 30-39.

Based on the information gathered by Allen and Seaman (2008)[7] for the spring term of 2007, an estimated of 3,9 million students participated in at least one online course, which represents more than 20% of the total population of higher education students participating in this teaching-learning model. During that term, it was verified a 12% increase in the number of students in relation to the previous period. These features become significant when considering that the population of students observed for the higher education system in the same period increased in only 1,2%.

When describing the scenario of e-learning in the United States, these authors suggest that 80% of the people registered in an online program aspired to obtaining an undergraduate degree, 14% of the population participated in online post graduate courses and the rest participate in courses leading to credits. When considering the disciplines given in this system, it can be observed that in the areas of business, arts and liberal sciences, humanities, bachelor degree, programs in relation to the areas of health, education and computer and information sciences, there is a penetration of the online program of more than 30% in each one of these areas.

In relation to this, it can be said that the characteristics of e-learning are not only related with the capability for meeting the needs of the population in relation to training, but also with the quality requirements expected from an education program, in terms of the effectiveness of the teaching-learning process. The research carried out by the U. S. Department of Education (Office of Planning, Evaluation, and Policy Development, 2009)[8]: "Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies", shows that learners that study in the e-learning format, as an average, show better academic results than those students that attend on campus classes. This difference is greater in the case of the contrast between on campus students versus the blended modality (which considers between 30% and 79% of the contents online). This based on a meta- analysis of more than 1000 empiric researches issued between 1998-2008. In this sense, the expression coined by Russell (2002)[9], "the no significant difference phenomenon" with an exhaustive bibliographic research of 255 researches that led into the conclusion that there were no significant differences between the results of students attending online course is versus on campus courses, has become obsolete.

The evidence provided by the United States Department of Education (2009)[10], shows that the students enrolled in e-learning programs dedicate more time for studying, having a great impact on the benefits for the students. As well, the different ways to give these contents, as well as the different profiles of students registered in this form of teaching-learning system, have no influence on the effectiveness of the system. The research mentioned above states that for both undergraduate and graduate levels, e-learning is effective, as well as under the wide variety of academic and professional programs available.

## III. THE E-LEARNING SYSTEM AS A MODEL OF DISTANCE EDUCATION IN CHILE

From the year 2000 we can observe vividly the incorporation of information and communication technologies (ICTs) in Chilean higher education. From then on, the use of digital tools as a way to support teaching has extended, but only a limited percentage of contents are provided online and they are generally related to the administrative matters of teaching. That means that virtual education in Chile is mainly understood as a complementary mechanism of on campus formation (e-support).

The limited percentage of online provided contents has progressively evolved to blended learning and e-learning, content delivery format that is still extending to the broad context of higher education in Chile. Hence, distance education in Chile has been implemented in the different higher education institutions (in the form of e-support, blended and e-learning) showing its formal educational character, related to the institutional support. It is worth mentioning that the above described process is mainly present in universities, being incipient in other post-secondary education agencies (Universidad Virtual-REUNA, 2003)[11].

E-learning has been specially used in the development of short term courses focused on adult training and specialization, targeted to lifelong learning. Therefore, these are many e-learning programs which do not lead to the achievement of a degree. However, gradually undergraduate and graduate programs have been developed, even though they are still underrepresented in this context.

The examined subject areas for this modality of teaching learning are firstly economics and administrative sciences, secondly computer sciences, then education and to a lesser extent other fields of study (Condeza, 2004) [14]. In accordance with Riquelme and Martínez (2008), the Chilean on-line education offer is the following: general

courses 55%, diploma courses 27%, undergraduate programs 9%, master programs 8% and Phd programs 1%.

Another particular component of the Chilean experience is related to the part the State has assumed in the field of training needs and development of advanced human resources, which has been taken by SENCE, the National Service for Training and Employment, an institution under the Labor Ministry (Condeza, 2004)[12]. We can read in the web site of the above mentioned Ministry that SENCE has as its main purpose "contribute to improve companies competitiveness and employment opportunities for people, by applying public policies and instruments in the market of in-service training and mediation, in order to promote a process of permanent training. This task is performed by administrating tax incentives that the State offers to companies to train their workers and also as subsidiary actions consisting of training grants which are paid by the State as well." Then, e-learning has been established as an enhancement strategy encouraged by this agency, so its high potential in productive development has been acknowledged (DOXA America Latina & Servicio Nacional Capacitación y Empleo, 2003)[13]. It is relevant to mention that this has turned companies into the sector with the most significant demand for training in the e-learning modality (Riquelme & Martínez, 2008)[14].

Other initiatives that can be distinguished in the Chilean path of e-learning are: Centro de Educación a Distancia, TELEDUC, of the Pontificia Universidad Católica de Chile, which from 1977 provides educative resources for the community through distance education, initially with the utilization of the educative television, and right now through e-learning modality. The Corporación Red Universitaria Nacional, REUNA, integrates the information technologies in the academic context in Chile, by means of mechanisms of collaboration between its members. In 1999 it created the UVirtual. Also is worth mentioning, the Universidad Virtual of the Universidad Técnica Federico Santa María, recognized as one of the first initiatives associated to the concept of virtual education, which started in 1998. Quinto Campus, of the Pontificia Universidad Católica de Chile, was installed in 1998, composed by videoconference classroom and multimedia in four campuses, from which different undergraduate courses are provided. Red Enlaces, of the Ministry of Education, is a program generated during the nineties, oriented to improve the education through the incorporation of technologies as a didactic resource; meanwhile a digital culture is developed among the citizens. INACAP, was the first technical training centre that provided distance courses through video and teleconferences, starting to form distance learning courses designer. Instituto de Informática Educativa, IIE, of the Universidad de la Frontera initiated the graduate program of Educative Informatic in 1996 (Universidad Virtual-REUNA, 2003)[15].

When we consider the development of distance education in Chile, it is relevant to reflect upon its legal frame. In this sense, the National Accreditation Committee which is a public, autonomous agency states that its purpose is "to verify and promote the quality of independent universities, colleges and technical training institutes as well as the programs they offer, which must be developed in accordance to the terms of the Quality Assurance Higher Education Act, No. 20129", which was enacted in 2006. In spite of the ordinances provided by the current legislation, there are not legal or evaluation standards for this educational modality. Chilean law does not provide protocols of institutional accreditation for training programs concerning blended or e-learning courses. Riquelme and Martínez (2008) [16] state that by examining the related case load, it is possible to draw the conclusion that the modality of distance education could be considered as a negative characteristic in the accreditation processes.

The background information can demonstrate that the e-learning modality is not completely incorporated in the logic of the Chilean higher education system because it lacks specific regulations aimed at the quality assurance of this kind of training. This situation is not consistent with the expressed intention of including information and communication technologies because the special features of this educational modality are not acknowledged and on the other hand it is not integrated into the existing regulatory framework.

The cultural barriers of any change process imply not only its implementation but also its social validation, and in order to advance a step forward in distance education accreditation of e-learning is imperative. "Accreditation should not be an obstacle but an incentive for institutions as well as for people, in this way they can trust the quality of intensive technological modalities" (Bendersky, 2009, p.17)[17]. Therefore it is possible to set out as a challenge the development of quality and effectiveness accreditation mechanisms for this modality in order to certify that distance education also fulfills the standards which are usually demanded from on campus education.

## IV. UNIVERSIDAD UNIACC: AN E-LEARNING EMBLEMATIC CASE

The University of Arts, Sciences and Communication, Universidad UNIACC, is a private, accredited and autonomous institution of higher education and for more than twenty years it has been engaged in university training and professional development in the communication area, especially in the fields related to arts and multimedia technologies. This institution was created as a college in 1981 and turn into university in 1991. From then on, UNIACC has consistently developed academic programs that fulfill the growing demand for higher education, not only for secondary school leavers, but for students who want to finish incomplete studies, take a second university degree, enhance their professional expertise, change their vocational inspiration, and so on. As a result of the previously described needs, the Special Degree Program, was implemented and it is aimed at adult students who attend regular evening lessons during five semesters; additionally they have their degree process.

Because UNIACC has profound knowledge and involvement in the field of new information and communication technologies, since the nineties it has incorporated ICTs as a main element of its academic development; therefore the teaching methodologies have made the necessary changes demanded by this educational approach, considering the requirements of a centralized educative platform in terms of pedagogic methodologies, instructional design, teaching guides and tutorial support, in order to assure the best learning results. In accordance with the previously described model, on campus students can get the contents of their subjects using e-campus, a distance education platform. So students have access to courses in blended modality and others can study in terms of distance education using e-learning.

Since the time the Special Degree Program was implemented, UNIACC has developed online programs in order

to provide academic alternatives for adult learners. Considering its experience in on campus programs and the necessary changes required by distance education, in 2004 UNIACC created the business administration degree, the first 100% online undergraduate program in Chile. At present UNIACC offers different complete e-learning programs for undergraduate and postgraduate students. This academic offer considers the possibility of studying diverse subjects by means of e-learning programs and additionally the implementation of professional study programs which are closely related to the impact of ICTs, for example Computer Science Engineering, Public Administration (e-government), Master in Communication & Educational Technology for E-Learning, Master Degree in Informatic Law, and so on.

The leadership in higher education is related to the capacity of adjusting the organization to the demands originated in the social context, as well as being able of adapting that context to the institutional requirements. In this sense, UNIACC was capable of anticipating the growing need in order to offer more study possibilities for adult learners, implementing e-learning academic degree programs. At the same time, and considering UNIACC experience in the field of e-learning, it has promoted open discussions about the relevant necessity of search for the means to develop a quality assurance accreditation system for this kind of programs.

Consequently, the emblematic situation of Universidad UNIACC is related to different elements. First the effective research and development of running the initiative adjusted to the national environment, adapting foreign know-how to local conditions in order to create feasible and appropriate distance learning programs. Secondly, it is necessary to emphasize the existing coherence in relation to the university vision and mission, because as it is stated in the institutional strategic plan ICTs are a relevant component of the different educational programs. A third consideration has to do with the profound institutional involvement to implement distance education accordingly to a teaching-learning paradigm which implies innovative methodologies. Last, it is necessary to stress the leader position obtained due to the implementation and development of distance education as complete e-learning programs when in Chile, ICT in higher education is still extendedly assumed as e-support.

## V. ADVANTAGES OF THE E-LEARNING SYSTEM FOR CHILE AND LIMITATIONS FOR ITS IMPELMENTATION IN THE NATIONAL CONTEXT

The advantages of the e-learning system for a country like Chile can be summarized in the following ideas:

- Access: extends the possibility for access to information or training needed in order to have qualified human capital, for a country which geographic and connection characteristics can be a limitation.
- Coverage: extends the possibilities for training and education to more social groups (eliminating barriers such as: gender, age, geography and population distribution, physical impairment, etc.), turning the higher education system into a more inclusive one and, therefore, helping social mobility.
- Compatibility: allows more people who, because of time, distance, family, work, or other reasons did not have the possibility to study, to do it in coexistence with their current circumstances, giving the possibility for training not exclusively during one stage of life but in lifelong terms.
- Integration: allows creating networks that strengthen the social capital of the population, interconnecting people from different points of the country in a space for collective knowledge construction.
- Empowerment: locates the student in the centre of his educational process, which strengthens lifelong learning, training professionals with the ability for constant update.
- Innovation: goes hand-in-hand with the developments in the area of information and communication technologies, allowing the exploration of new formats and multimedia in order to stimulate the teaching-learning process.

As a consequence, for a country with the geographic, social and economic characteristics present in Chile, the e-learning system can be seen as the possibility for the development of the population and of the country as a whole, in relation to building qualified human capital, in a country that intends to maintain competitiveness in the international context and, at the same time, it can also improve the living standards of its inhabitants.

About the restrictions for e-learning implementation, it is worth to emphasize the need of formal recognition and appreciation of it as an effective teaching-learning mechanism by the higher education authority. The fact that initially the programs were not leading to academic degrees and on the other hand the lack of a formal quality assurance accreditation process for this modality, could be some of the reasons why distance education is considered as “the poor relative of the formal educational system”, as it is characterized by Mena (2002, quoted in Condeza, 2004, p.69)[18]. Additionally it is necessary to consider the lack of knowledge about the characteristics of this way of providing educational contents and consecutive reticence to distance education programs and their impact on the labor market, all these elements work as barriers to avoid the social consolidation of this format.

On the other hand there are technical restrictions that determine the real possibilities people have to get access to this kind of training. Elements such as bandwidth will determine higher or lesser running of the existing e-learning resources to favor the teaching-learning processes and the use of multimedia, synchronic and interactive technologies. But in order to take advantage of the technological and pedagogical resources, the connectivity system of the network needs not only to be enlarged but also improved. The telecommunications system must allow connection without hindering the access to the many potentials of e-learning. Investment in technological research, development and implementation becomes a challenge at the light of the needs of computer facilities and connection systems that support growth and guarantee the quality of the educational service provided.

## VI. CONCLUSIONS

Higher education stopped being oriented towards a social elite and has become a citizen right. It has ceased in its role as educator of particular individuals of a country, to play the role of educator of citizens of the world. Its task is not exclusively knowledge creation and transmission, for the development of the competences that can be applied in a fast changing world of knowledge, communications and technologies, aiming at increasing productiv-

ity, as well as contributing to social mobility and integration.

The implementation of new technologies in the education field has had a deep impact the teaching-learning relation. It is currently understood as a constructive form of knowledge, by means of interactive and cooperative experience in the classroom (either real or virtual). The teacher stops being the only provider of contents and becomes a facilitator and the leader of a shared learning experience. As well, the student performs the role of an active character responsible for his own learning process. Simultaneously, the formats to supply the contents become flexible in programs with different durations, methodologies and fields.

The inclusion of new technologies may benefit the current wide range of students. On one side, considering the differences among the individuals in relation to their cultural, geographical, generational, and diversity characteristics, as well as in relation to their background, being a contribution in order to give access to people with difficulties such as time, distance or even disabilities that prevent them from attending a campus, allowing them continuing with their studies, updating the knowledge and acquiring new tools. In this way, access to university no matter when or where is granted, by means of a computer under the idea of education at a distance, online format. In this sense, e-learning has emerged as an effective alternative to broaden the access to education, and to allow lifelong learning, by means of a more inclusive system. In this way, individual and/or collective research is possible for the acquisition of competences by means of experimentation with those technologies.

It is essential to increase the human capital and to include new technologies in order to promote the economic and social development of the country, in order to continue being competitive at the worldwide level and to improve the life standards of the citizens. In this sense, it is important that learning should become a life long learning experience rather than being limited to a specific moment in the life of the students, together with the need for investment in innovation and technology, give evidence that e-learning is absolutely coherent with the idea having an advanced higher education system, that will train future professionals for our country, accordingly to the global context.

In this scenario, it is relevant to be able to identify the tendencies that affect and will affect the educational system. But not only it affect the system but also the entire community, the labor market, and in general, the development and growth of the country. High education institutions must then be capable of recognizing, projecting and planning better alternatives to anticipate the changes in the environment in an accurate, creative and flexible way. These institutions must adapt themselves to the challenges of changing processes in a unique and innovating way, and especially in their own way, in order to link the identity of each institution with the demands of the environment. Being visionary and innovating in the higher education field confers a social benefit in relation no only to economic growth and maintaining competitiveness at an international level, but also social benefits that will have direct effect on each individual and their own capabilities to face the challenges of the 21st century. Training, and continuous education is a requirement in a dynamic global market, and higher education institutions must be capable to adapt themselves to face those requirements in order to train professionals in accordance with the times.

## REFERENCES


[1] J.J. Brunner, *Tendencias recientes de la educación superior a nivel mundial*. August 2005. Available in http://mt.educarchile.cl/mt/jjbrunner/archives/2005/08/tendencias_reci.html

[2] M. Castells, *La era de la información. Vol. I: La sociedad red.* Mexico: Siglo XXI, 2002.

[3] OECD and The World Bank, *Reviews for national policies for education. Tertiary education in Chile.* Paris: Author, 2009.

[4] E. Rodríguez, *Desafíos estratégicos del sistema nacional de aseguramiento de la calidad*. Lectures in the Seminario Internacional de Educación Online, Universidad UNIACC, 2009.

[5] D. G. Oblinger and J. L. Oblinger (eds.), *Educating the net generation.* Washington, DC: Educase, 2005. Available in http://www.educause.edu/educatingthenetgen

[6] W. Blair, *Growth Stock Conference, Apollo Group*. June 2009. Available in http://www.apollogrp.edu/investor/Presentations/William%20Blair%2009-06-11%20Presentation%20(FINAL).pdf

[7] E. Allen and J. Seaman, *Staying the course. Online education in the United States, 2008.* Sloan Consortium & Babson Survey Research Group, 2009. Available in http://www.sloan-c.org/publications/survey/pdf/staying_the_course.pdf

[8] U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington D.C.: Author, 2009.

[9] T. Russell, *The no significant difference phenomenon. As reported in 355 research reports, summaries and papers –a comprehensive research bibliography on technology for distance education.* 2002. Available in http://www.nosignificantdifference.org/

[10] U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, *op. cit, 2009*

[11] Universidad Virtual-REUNA. *La educación superior virtual en Chile.* 2003. Available in http://unesdoc.unesco.org/images/0014/001403/140393s.pdf

[12] R. Condeza, "Tendencias actuales en educación"in *M. Mena. La educación a distancia en América Latina*. Buenos Aires: ICDE – UNESCO, 2004.

[13] Doxa América Latina and Servicio Nacional de Capacitación y Empleo, *Estudio fomento y promoción de la capacitación laboral a través de e-learning. 2003.* Available in http://www.chilecalifica.cl/prc/n-0-informe.pdf

[14] P. Riquelme. and C. Martínez, *Estado de la educación superior online. 2008.* Available in http://productosonline.files.wordpress.com/2008/08/200802-estado-eol-chile.pdf

[15] Universidad Virtual-REUNA, *op. cit*, 2003.

[16] P. Riquelme and C. Martínez, *op. cit*, 2008.

[17] S. Bendersky, *Modelos de acreditación e-learning: Relevancia para la educación superior en Chile.* Lectures in the Seminario Internacional de Educación Online 2009, Universidad UNIACC, 2009.

[18] R. Condeza, *op. cit*, 2004.


## AUTHORS


**Daniel Farcas** was with UNIACC University, Santiago, Chile. He was the rector of the institution, and president of the Corporation on Private Universities of Chile (e-mail: daniel.farcas.g@gmail.com).

**Marion Reininger** is with UNIACC University, Santiago, Chile. She is now a researcher of this institution. (e-mail: mreininger@uniacc.edu).


This article was modified from a presentation at the ICELW2010 Conference in New York, USA in June 2010. Submitted July 28th, 2010. Published as resubmitted by the authors July 29th, 2010.