

DOSSIER

Education and Technology in Mexico and Latin America: Outlook and Challenges. Introduction

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Abstract

With an increasing number of young people reaching university entrance age, *the demographic reality of Latin American countries is changing the face of their traditional higher education spaces*. The impact is driving institutions to seek effective solutions, and technology has been identified as a 'way forward' in terms of offering education to the growing population of young people who want it. Technology-mediated education must therefore help to improve Latin American citizens' quality of life.

In Mexico, and since 2010, the National System of Distance Education (SINED) – an initiative led by universities interested in strengthening education mediated by information and communication technologies (ICTs) – has been exploring ways to incorporate these tools into the evolution of Mexican and, by extension, Latin American universities.

This monographic Dossier, produced in conjunction with RUSC. Universities and Knowledge Society Journal, is part of the SINED's effort to progress towards generating information, documentation and materials to support the academic community involved in ICTs and innovation from a number of angles, including use, learning and research. In order to achieve the objectives set, it is important to

support and disseminate effective initiatives in and consolidated experiences of using and applying technologies to university education contexts, and also to foster the emergence of spaces that are open to the agents of the educational community for disseminating and sharing their experiences of technologies in education.

Keywords

Latin America, educational innovation, successful cases, knowledge spaces

Educación y tecnología en México y América Latina. Perspectivas y retos

Resumen

La realidad demográfica de los países latinoamericanos, con un número creciente de población joven en edad de cursar estudios universitarios, está alterando sus espacios tradicionales, impactando en ellos. Esto lleva a las instituciones a buscar soluciones eficaces; de este modo, se ha identificado la tecnología como una «salida» para ofrecer la formación que esta creciente población joven demanda. Por tal razón, la educación mediada por la tecnología debe contribuir a mejorar la calidad de vida de los ciudadanos latinoamericanos.

En el caso mexicano, y desde 2010, el Sistema Nacional de Educación a Distancia (SINED), surgido como una iniciativa impulsada desde las universidades interesadas en fortalecer la educación mediada por las tecnologías de la información y de la comunicación (TIC), explora vías para la incorporación de estas herramientas en el devenir universitario mexicano y, por extensión, latinoamericano.

El presente monográfico elaborado conjuntamente con RUSC es parte del esfuerzo que SINED realiza para avanzar en el camino de generar información, documentación y material de apoyo para la comunidad académica que está inmersa en el uso, el aprendizaje y/o la investigación en TIC e innovación educativa. Para avanzar en los objetivos fijados, es importante apoyar y difundir iniciativas eficaces y experiencias consolidadas de uso y aplicaciones tecnológicas en los contextos educativos universitarios, así como favorecer la aparición de espacios abiertos a los agentes de la comunidad educativa para la difusión y puesta en común de sus experiencias con las tecnologías en educación.

Palabras clave

Latinoamérica, innovación educativa, casos de éxito, espacios de conocimiento

The Mexican National System of Distance Education (SINED) was created in 2010 as an initiative led by Mexican universities interested in strengthening education mediated by information and communication technologies (ICTs). The SINED's mission is to help raise the quality, coverage and equity of education in Mexico through the institutionalisation of educational social networks, and also to work towards using, integrating, developing and disseminating innovative educational technologies, products and services that promote knowledge generation and management for economic growth and social wellbeing.

The SINED has been unwavering in its commitment to become a hub and an instrument for consolidating technology-mediated education, a vocation that has a promising future because, in Mexico and Latin America, this mode has advanced significantly in recent decades. Despite this

progress, it has had to surmount several major obstacles (and continues to do so) to become an education policy instrument that is capable of mitigating the gap in education, fostering lifelong learning and assuring the quality of courses in higher and postgraduate studies. In short, technology-mediated education must help to improve Latin American citizens' quality of life.

Universities are under great pressure to provide coverage in countries like Mexico, where the impact of the demographic bonus on traditional higher education spaces is rendering them insufficient for satisfying demand; quite rightly, these institutions see technology as a 'way forward' in terms of offering professional training to the growing population of young people who want it. However, the lack of planning, sustainability and knowledge about the characteristics, needs and requirements of technology-mediated education tends to raise false expectations and ultimately leads to poor results.

Regarding digital competency, for example, many Latin American countries are marked by a series of contrasts and contradictions, as well as endless problems associated with unequal access to technology: the most modern institutions located in big cities allow practically every student to make digital spaces part of their daily learning environment, irrespective of whether or not they physically attend a university. Consequently, there is a need to analyse what is actually happening with interactions of various types, including those between students and their learning environments, between students and their lecturers, and between students and their fellow students.

At the opposite end of the scale are university institutions located outside capitals or big cities. While not benefitting from the same financial advantages as the others, they are often subject to the centrally designed and implemented demands of providing the same coverage, education and academic quality. Such institutions manage to survive on very few resources and very few or hardly any digital competency options for their students or teaching staff.

It is clear to see that this mode of education presents many challenges, and perhaps the most obvious ones are those relating to the problems associated with technology and telecommunications infrastructure that, coupled with the cost of that infrastructure, are generically known as the 'digital divide'. Other problems include those connected with higher education models, laws and regulations that either permit or prevent this mode from becoming a real, quality alternative for thousands of young people and adults that want to carry on studying, for whom traditional face-to-face education is not really an option.

The efforts made by *RUSC* and the *SINED* in publishing this special issue were motivated by several successful cases in this field, by innovative visions dealing assertively with these and other problems, and by the wealth of analysis that may provide new knowledge for dealing with Latin American educational realities from angles that, up till now, have barely been explored, disseminated or documented.

Communicating the current state of ICT interaction and of education in innovative environments both nationally and internationally, and in the Ibero-American sphere in particular, is of vital importance now more than ever, especially because of the increasingly heady rate at which technology is being incorporated into citizens' formal and non-formal education.

At the present time, generating knowledge that deals with the relevance and rigour of incorporating the latest generation of technological devices into learning environments is a major

challenge. So too is seriously evaluating their impact on information processing and on their users' cognitive development. Analysing these and other topics has become an increasingly pressing task if the aim is to ensure that educational innovation does not continue to lag behind the processes of teaching, learning and developing technological skills.

In publishing this monographic Dossier, some of the objectives of the *RUSC-SINED* alliance are: to generate information, documentation and materials to support those who are already involved in ICTs and innovation from a number of angles, including use, learning and research; to support and disseminate effective initiatives in and consolidated experiences of using and applying technologies to university education contexts; and, in short, to offer open spaces to the agents of the educational community for disseminating and sharing their experiences of technologies in education. The academic rigour of this monographic Dossier allows for the generation of new knowledge and the dissemination of many Latin American experiences currently being undertaken in the field of technology-mediated education.

Finally, for the *SINED*, this monographic Dossier represents a space for reflection on and analysis of education policy and its relationship with technology. Furthermore, it is an opportunity to document and share the efforts and actions being taken by many higher education institutions and research centres in Latin America.

After anonymous peer review, *RUSC's* Scientific Editorial Board selected the five articles that make up the monographic Dossier. These are briefly presented below.

"Challenges and perspectives for the open education movement in the distance education environment: a diagnostic study in a *SINED* project", an article by María Ramírez, offers us an analysis of the adaptation to the Mexican environment of the successful case that is the Regional Open Latin American Community for Social and Educational Research (*CLARISE*). The role of open educational resources (*OERs*) in open educational practices (*OEPs*) is one of the focal points of this project, which involved 255 participants from 12 Latin American and European countries. In the article, the author studies the use of *OERs* in technology-mediated environments in nine Mexican institutions and, in her conclusions, suggests several challenges and opportunities for the use of *OERs* and the development of *OEPs* in online education environments in Mexican universities.

In their article "Pedagogical models, collaborative work and interaction on online undergraduate programmes in Colombia: still some way to go", Clelia Pineda Báez, Cristina Hennig and Yasbley Segovia examine the experiences and perceptions that students, lecturers/tutors and coordinators have of the pedagogical models used in the online programmes of six Colombian higher education institutions. The aim is to explore the different views of the pedagogical models used and to find out how they have been implemented in pedagogical practice, using qualitative and quantitative techniques. The conclusions point to problems arising from the existence of institutional pedagogical models that are conceived as ideal, which generate ambiguity in the development of the concept of collaborative work and limit such work to the formation of work groups and the distribution of tasks, thus hindering interaction among the participants.

In "Cooperation for institutional strengthening: shared knowledge in the quest for improved teaching", Almudena Alonso presents some of the results obtained over the lifetime of a four-year

institutional cooperation project. Like the case presented by the SINED, this article refers to an experience of prior collaboration in a network called Universities for the Information and Knowledge Society (UNISIC), in which six Latin American universities have been working together since 2006.

The main aim of the four-year project, which has now ended, was to incorporate technologies into one of the institutions, with emphasis on improved teaching. The task of implementing the project was divided into five different programmes, in which lecturer training, educational technology research and technology investment were interrelated. In the article, the author highlights a number of important aspects for the success of a project of this magnitude, such as an open knowledge approach, opting for open source software, the (often overlooked) fact that the infrastructure has to be suited to the real needs of the users, long-term changes in institutional cultures, and project support.

As the author points out, summarising such a complex project is a difficult task. However, the summary she provides allows several useful guidelines to be gleaned from the results obtained for implementing similar actions in other institutions.

"Latin American university students' perceptions of social networks and group work", an article by Verónica Marín and Julio Cabero, analyses university students' levels of knowledge of social networks and their perceptions of group work, by means of a study conducted on a sample of 1,040 students from 7 higher education institutions in 4 Latin American countries. As the authors point out, it is practically impossible to offer or gain a university education without it involving ICTs, though e-learning may be hindered by the students' sociocognitive isolation. It is on this particular point that collaborative group activities can help to create environments that are more active, hence the importance of knowing what the students' attitudes towards them are.

The authors set several objectives. The first is to identify the students' perceptions of social software and of collaborative group work (in comparison to individual work). They also analyse whether the country of provenance gives rise to any differences in the above-mentioned perceptions. Lastly, they aim to identify the social tools that the students' use the most.

The discussion of the results obtained puts forward several ideas for the incorporation of different strategies and ICTs into e-learning, which deserve to be taken into account by Latin American academic managers, in their efforts to incorporate technologies into higher education.

In "Twitter's contribution to improving strategic communication in Latin American universities", Alba Patricia Guzmán and María Esther del Moranos present a study examining universities' Twitter use. Despite imposing a limit of 140 characters per post, this microblogging service forms part of hundreds of millions of people's daily lives, and universities are not immune to this reality.

By means of a study of the institutional accounts of 263 Latin American universities, the authors analyse the use made of this tool for strategic communication purposes. In the discussion, the community manager figure emerges as a key element for effective Twitter use in institutional communication strategies and, in the conclusions of this quantitative study, the authors point to the variability of its use in universities, and also to the existence of two priority trends for its use.

As co-editors of this monographic Dossier, we would like to thank the participating authors and reviewers for their help in preparing it, for meeting the deadlines set and, consequently, for enabling this issue of *RUSC* to reach the scientific community on time.

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About the Authors

Margarita Ontiveros y Sánchez de la Barquera

montiveross@conacyt.com

General Coordinator, Mexican National Consortium of Scientific and Technological Information Resources (CONRICYT)

Margarita Ontiveros y Sánchez de la Barquera holds a bachelor's degree in Communication Sciences (Autonomous Metropolitan University, UAM, Xochimilco Campus, Mexico) and a master's degree in Educational Technology and Communication (Latin American Institute for Educational Communication, ILCE). As a grant-holder of the Mexican National Council of Science and Technology (CONACYT), in 2003 she did a stage in France to study the use of information and communication technologies (ICTs) at the University of Paris V (René Descartes) and the French National Institute for Pedagogical Research (INRP).

She is currently a lecturer at the National Autonomous University of Mexico (UNAM), where she has taught in a number of faculties; she has also lectured on postgraduate courses at the following Mexican institutions: Anahuac University, Xalapa University (UX) and Panamerican University (UP).

She was an advisor to the Under Secretary for Higher Education of the Mexican Secretariat of Public Education (SEP) on the SEP's Open and Distance University project (2008-2010).

She sat on the Technical Committee of the Higher Education System-National Association of Universities and Higher Education Institutions (SES-ANUIES) for the implementation of the Mexican National System of Distance Education (SINED), to which she is currently a permanent advisor for the development of special projects.

She is a member of the Technical Committee for the test on Digital Competencies for Education and Work (CODIET) in Mexico, which assesses the ability of young people in further and higher education to apply technological skills to the labour market and higher education studies.

She is currently the general coordinator of the Mexican National Consortium of Scientific and Technological Information Resources (CONRICYT) at CONACYT, and is responsible for the database of scientific journals for that Council.

Consejo Nacional de Ciencia y Tecnología

Av. Insurgentes Sur 1582

Col. Crédito Constructor

Del. Benito Juárez

México DF. CP 03940

Mexico

José Raúl Canay Pazos

raul.canay@usc.es

Lecturer, Department of Financial Economics and Accounting,
University of Santiago de Compostela, Spain

José Raúl Canay Pazos holds a bachelor's degree in Business Administration and Management specialising in Economics (University of Santiago de Compostela, USC, Spain) and a doctorate in Economics (University Institute of Studies and Development of Galicia at the USC). He also holds postgraduate qualifications in e-Learning Project Management (Open University of Catalonia, UOC), in Auditing (USC-Spanish Institute of Sworn Auditors) and in Finance and Taxation (USC).

He was director of the Learning Technology Centre (CeTA) at the USC from the time it was created in 2003 to July 2010, where he was in charge of implementing and managing the USC's current Virtual Campus, as well as a variety of initiatives connected with teaching innovation policies related to the use of information and communication technologies (ICTs) at the USC.

Since it was formed, he has been a member of the expert research group that has collaborated with the ICT Analysis and Planning Working Group of the Conference of Spanish University Rectors (CRUE) on the elaboration of the report on ICTs in the Spanish university system, the seventh edition of which is about to be published.

He is a member of the Editorial Board of *RUSC. Universities and Knowledge Society Journal* published by the UOC, of the Scientific Review Board of the journal *Comunicar* and a founding member of the Spanish University Network of Virtual Campuses (RUCV) association.

Facultad de Ciencias Económicas y Empresariales
Campus Norte
Avenida de Burgo das Nacións s/n
15782 Santiago de Compostela
Spain



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