

Chapter 2

E-learning in higher education in Latin America

The increasing use of information and communication technologies (ICTs) in higher education has led to important changes resulting in greater weight being placed on the virtual component of emerging methods of teaching and learning. E-learning is expanding globally, with new forms of delivery of higher education and relevant developments – such as MOOCs – that are transforming some of the main foundations of the traditional university and may be the prelude to a new higher education paradigm. These developments represent an opportunity for Latin America, as e-learning has the potential to increase access to higher education, improve its quality and strengthen links with the productive sectors. However, the relatively low incorporation of ICTs in the region as well as the risks associated with these emerging trends need to be borne in mind.

The incorporation of information and communication technologies (ICTs) into teaching and learning is a relevant phenomenon that has influenced the recent evolution of higher education. The different changes it has engendered are transforming our understanding of higher education today. This chapter analyses these issues in two parts. The first section delimits and reviews the concept and evolution of “e-learning”, from the more traditional forms of “distance education” to the current modalities of virtual education. It also examines the global expansion of e-learning in higher education and some of its most recent developments. Finally, it studies the emergence of new pedagogical models associated with e-learning, as well as their impact on the higher education paradigm. The second section frames these developments in the Latin American context and analyses their potential impact, as well as the challenges and opportunities that these may represent for the region’s higher education system.

E-learning: Recent evolution and trends. Towards a new paradigm for teaching and learning in higher education?

ICTs are one of the main transformative forces of higher education. The gradual incorporation of new technologies is one of the main drivers shaping the field of higher education in recent decades. ICTs account for much of the evolution from the first forms of distance education to the most recent developments associated with digital technologies. They have gradually incorporated new elements, practices and formats that may be building a new paradigm for teaching and learning in higher education.

From distance education to virtual education: E-learning as a broad concept

The origins of e-learning can be traced back to the first form of education that went beyond the boundaries of the classroom: distance education. While distance education was already remarkably present in the late 19th century, it emerged as a more solid educational option in the second half of the 20th century, thanks mainly to the development of new technologies and the growing demand for higher education. The creation of the Open University in the United Kingdom in 1969 and of the University of Distance Education (UNED) in Spain in 1972 represent some milestones in this form of education, which gained presence in subsequent years mainly as an option for students located in distant geographical areas lacking access to educational institutions.

Distance education evolved along with innovations, and hence its format has been adapting to the new opportunities represented by emerging technologies. The first forms of distance education essentially relied on printed and mailed material, with basically no use of ICTs. The first generation to adopt technological tools for distance education used the telephone and television. The second generation incorporated other media, such as facsimile transmission, audiocassettes and videocassettes. The third generation principally used computers, opening up the possibilities for education delivery. Finally, the emergence of the Internet and high-bandwidth computer technologies started a fourth generation of distance education, bringing about new possibilities and incurring faster-paced changes (Keairns, 2003).

One of the most important developments in higher education in recent years was the so-called “open education movement”, driven by the incorporation of ICTs in higher education and leading to the emergence of open educational resources (OER).¹ This movement grew as an approach to education which tried to remove barriers to teaching and learning, using new digital technologies to share educational resources openly across the global community of educators and learners. The steps taken in this direction by the Massachusetts Institute of Technology (MIT) gave strong impetus to this trend. MIT created the OpenCourseWare (OCW)² in 2001, and then formed the OCW Consortium in 2005. By 2007, it had published all of its courses online (Peters and Britez, 2007). The movement toward open sharing of educational resources grew intensely during these years, with many additional education institutions following suit. As the OECD put it, “an apparently extraordinary trend is emerging. Although learning resources are often considered as key intellectual property in a competitive higher education world, more and more institutions and individuals are sharing digital learning resources over the Internet openly and without cost, as open educational resources” (OECD, 2007).

More precisely, UNESCO describes OER as “any educational resources that are openly available for use by educators and students, without an accompanying need to pay royalties or licence fees” (UNESCO, 2011). The OECD defines OER in more detail as “digitised materials offered freely and openly for educators, students and self-learners to use and re-use for teaching, learning and research. OER includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licences” (OECD, 2007). In other words, OER represent a large pool of knowledge in the form of educational resources that are available to educators and students, who in turn can both contribute to improving and expanding these resources and interact with each other for better teaching and learning results. This new approach to

education has garnered increasing attention since its appearance as it represents a major educational tool that can expand access to learning to everyone. The concept is also seen as having strong potential to improve the delivery of higher education across the world, especially at a time when the use of knowledge is critical for economic success (UNESCO, 2011). Although OER are not synonymous with e-learning, they have driven a number of concepts – such as openness, interactive learning and knowledge sharing – that are often associated with e-learning and constitute key features of its subsequent evolution.

The development of new communication technologies, together with the expansion of the open education movement, has blurred the distinction between distance and face-to-face models. Many new educationally and financially feasible ways of providing education are emerging that tend to combine elements from the more traditional face-to-face education methods and distance education in various forms (UNESCO, 2011). The notion of a continuum has gained traction in the literature: most forms of education combine elements of both delivery methods, i.e. integrating ICTs and new educational approaches, while less and less educational methods can be categorised as fully face-to-face or fully at distance (UNESCO, 2011). This also explains why experts are increasingly employing the terms “hybrid” and/or “blended” education.

This report delimits the concept of “e-learning” according to the OECD definition as “the use of information and communication technology to enhance and/or support learning in tertiary education” (OECD, 2005). Given the diversity of emerging educational methods, adopting a broad definition of e-learning allows for the inclusion of various forms of education incorporating ICTs, from web-supplemented courses, through web-dependent or more mixed methods of delivery, to fully online provision methods. It also facilitates discussion about different models, regions and degrees of ICT incorporation, allowing general comparisons to be made. This is particularly relevant for this report, as different regions – namely the countries where e-learning is more developed, on the one hand, and Latin America on the other – are covered throughout the analysis. Finally, since e-learning is a rapidly evolving field, an overly narrow definition could quickly become obsolete.

The notion of “distance” has become more difficult to delimit and the “virtual” aspect of education gains ground in the emerging methods of teaching and learning. The OECD definition of e-learning does not include notion of distance. The European Commission (2001), on the other hand, incorporates a sense of temporal/spatial separation. It describes e-learning as “the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well

as remote exchanges and collaboration". Yet the emergence of more hybrid educational practices is blurring the meaning of "distance": in many cases, the spatial separation between educator and students is removed by the virtual space generated in many emerging educational models, which recreates some of the aspects of face-to-face interaction thanks to new technologies and new pedagogical approaches (Keairns, 2003; UNESCO, 2011). In this sense, the concepts of "distance education" and "e-learning" may increasingly differ, while the terms "e-learning" and "virtual education" are increasingly similar (and will be used interchangeably across the report).

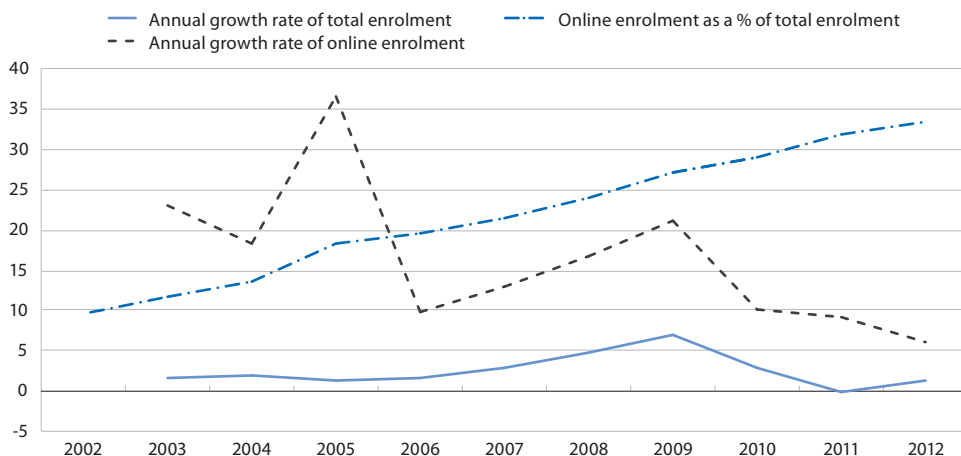
E-learning and its expansion

E-learning is becoming increasingly relevant in the field of higher education. Its expansion is due not only to the emergence of new ICTs or the development of new pedagogical approaches, but just as importantly to the need to broaden access to higher education in response to the increased demand and find additional financial resources at a time of concern for the higher education system's sustainability. In that sense, e-learning is viewed not only as a format for delivering education, but also as a means of acquainting students with the use of ICTs in a context where digital literacy is increasingly important. It is also seen as an opportunity for a more efficient organisation and management of HEIs.

E-learning has grown steadily in recent years as an option for higher education and is expected to expand progressively around the world. Although data and statistics on e-learning are difficult to find, which makes it complex to accurately evaluate the extent to which higher education institutions (HEIs) have adopted it, almost all the existing evidence indicates a steady growth in the adoption of e-learning (Helmeid and Vincent-Lancrin, 2014). Different indicators support this perception. First, the global market for "self-paced e-learning" generated revenues of USD 42.7 billion in 2013 and is expected to reach USD 53 billion by 2018 (Ambient Insight Research, 2014). Second, some of the countries where e-learning is more prominent show a significant expansion in course offerings. In the UK, around 35% of HEIs offered at least one e-learning course in 2010 (Faughnan et al., 2010). In Australia, a study by the Flexible Learning Advisory Group (FLAG, 2013) exclusively focusing on vocational education and training (VET) showed that 48% of all related activity involved some form of e-learning in 2013. In Korea, e-learning courses comprised 16.9% of all university courses – of which 38.9% were fully online, 14.2% blended and 46.9% web-supplemented or web-dependent – in 2009 (Hwang et al., 2010). In the United States, evidence presented by the National Center for Education Statistics shows that 66% of HEIs offered distance education in some of its forms

in 2006-07, of which 77% was fully online and 12% blended (Prasad and Lewis, 2008). Finally, while this shows the supply side of e-learning, demand can be understood by studying e-learning enrolment. Figures on student participation in the United States show that in the autumn of 2012 7.1 million students were enrolled in at least one online course (meaning they could also be enrolled in face-to-face learning), compared with 1.6 million in 2002 and around 4.0 million in 2007. This represented around a third (33.5%) of all students who were enrolled in higher education in 2012, compared with 9.6% in 2002 and 21.6% in 2007, with online enrolment showing a faster growth rate than total enrolment (Allen and Seaman, 2014) (see Figure 2.1). While the rate of growth of online enrollment may have slowed down, it is still growing (around 3.5% growth in 2013) and above total enrollment (around 1.2%) (Allen and Seaman, 2015).

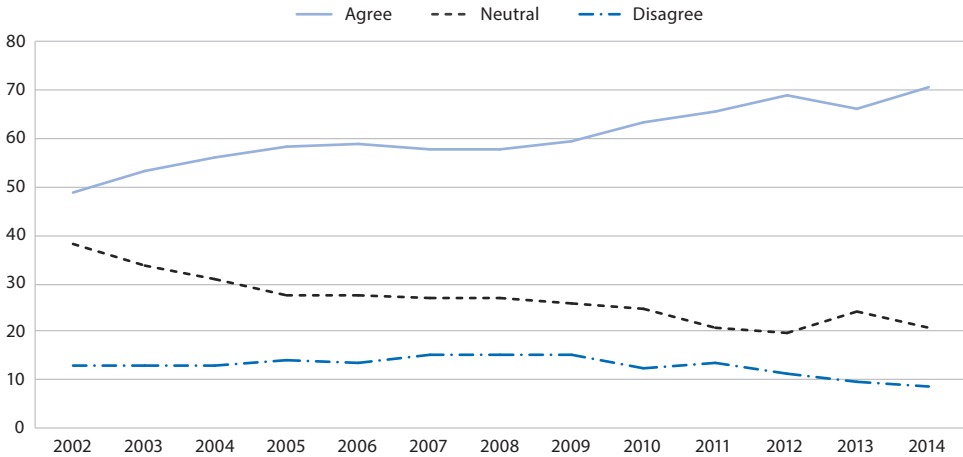
Figure 2.1. **Online enrolment vs. total enrolment in higher education in the United States, 2002-12**



Source: Allen, E. and J. Seaman (2014): "Grade change: Tracking online education in the United States", Babson Survey Research Group Report, 2014.

Academic leaders also believe online learning is an emerging force that will continue to expand in coming years. In 2013, around 90% of US academic leaders declared that it is likely or very likely that a majority of higher education students will enrol in at least one online course in the next five years (Allen and Seaman, 2014). Moreover, 70.8% of those surveyed considered online education critical to their institutions' long-term strategy – well above 48% in 2002. Leaders who considered online education as non-critical have remained at a relatively stable level of just above 10% until 2010, but have been declining since then and represented 8.6% in 2014 (Allen and Seaman, 2015) (Figure 2.2).

Figure 2.2. US academic leaders' response (in %) to the question "Is online education critical to the long-term strategy of your institution?", 2002-14



Source: Allen, E. and J. Seaman (2015): "Grade change: Tracking online education in the United States", Babson Survey Research Group Report, 2014.

In this context of expansion, one phenomenon – the appearance of massive open online courses (MOOCs) – has emerged strongly, driving the relevance of, and expectations around, e-learning. These courses have drawn much attention, with a significant share of the recent debate on the future of e-learning centred on their current impact and future development. The following section analyses in more detail the main features and potential impact of MOOCs.

The potential revolution of MOOCs

A major development – the emergence of MOOCs – has taken place recently in the field of higher education. Coined in 2008 by Dave Comier and Bryan Alexander, the acronym MOOC refers to a type of course that are *massive*, as they have no limitation on attendance or enrolment; *open*, as anyone with access to the Internet can participate in the course; and *online*, as they are delivered via the web. As Wikipedia puts it, "a massive open online course is an online course aiming at large-scale interactive participation and open access via the web". After a few years of relatively low attention to e-learning, MOOCs put it back on the higher education's policy agenda (Helmeid and Vincent-Lancrin, 2014).

MOOCs have emerged strongly, especially since early 2012, gaining strong presence in the media and among education experts. Many see them as a transforming force that will shape a new way of understanding higher education. In an article published in November 2012, the *New York Times* called 2012 “The Year of the MOOC”, recognising their growing relevance and expansion over just a few months. Many experts and commentators claim that MOOCs represent a revolution in higher education. The journalist Thomas L. Friedman supports this view in a series of articles in the *New York Times*: “Come the revolution” (Friedman, 2012), “Revolution Hits the Universities” (Friedman, 2013a), and “The Professors’ Big Stage” (Friedman, 2013b). He argues that “big breakthroughs happen when what is suddenly possible meets what is desperately necessary” (Friedman, 2012). That is, the costs of higher education have risen substantially in recent years, making access to quality higher education more difficult. In a world where knowledge is key both to individual and national success, and where new technologies open up new possibilities to transmit knowledge, the emergence of groundbreaking educational models represents an irresistible opportunity, although many aspects still have to be better adjusted and understood (Friedman, 2012). As the journalist puts it, “The MOOC revolution, which will go through many growing pains, is here and is real” (Friedman, 2013b). Other prestigious media have echoed the growing relevance of MOOCs. The *Chronicle of Higher Education* published a special report called “The MOOCs madness”, while the *American Interest* published an article bearing the straightforward and self-explanatory title, “The end of the University as we know it” (Harden, 2013).

MOOCs have experienced an extraordinary expansion, with an unexpected and rapid growth in the platforms offering courses and the number of courses offered. One of their main achievements occurred in late 2011, when a course on Artificial Intelligence (AI) at the University of Stanford surprisingly drew 160 000 participating students from more than 190 countries, around 20 000 of whom successfully finished the course. This marked the beginning of an intense expansion of MOOCs, with three big platforms (“the Big Three”) founded from January to May 2012: first, Udacity, a for-profit start-up founded by Sebastian Thrun, a Stanford professor (who taught the AI course), which works with individual professors and focuses mainly on computer science; second, Coursera, a for-profit platform founded by two Stanford professors, which offers free courses from more than 100 institutions (as of January 2015) and is implementing services to raise funds, e.g. by connecting potential employers with its students; and finally, edX, initially launched by Harvard and MIT (and subsequently joined by Berkeley) as a non-profit platform offering free courses from around 40 universities (as

of January 2015), which is steadily expanding the number of participating institutions. These major players in the MOOC universe are complemented by the Khan Academy. Founded in 2006 as an online library of short video expert lectures on different topics, it does not provide content from universities, but offers practical exercises often targeted at secondary education students (*The Chronicle of Higher Education*, 2013).

MOOCs are expected to continue expanding, as many HEIs are already planning their own. A report³ focusing on higher education in the United States shows that 8% of HEIs were offering MOOCs in 2013 – up from 5% in the previous year and from 2.6% in 2012 – with another 5.6% planning to offer them (Allen and Seaman, 2015).

While MOOCs have mainly expanded in United States-based institutions, they are starting to spread to other regions. MOOCs are by essence global, as they are open and accessible on line. For example, although the majority of students still come from the US, students from around 200 countries are enrolled in Coursera courses. While the first MOOCs initiatives stemmed exclusively from the United States, the trend is now shifting and MOOCs are arising across the world. An interesting experience is OpenupEd, the first pan-European MOOCs initiative, with more than 150 courses covering different subjects in 12 different languages (www.openuped.eu). Another initiative that is particularly relevant to the Spanish-speaking world is “Miríada X”, launched in January 2013 as a platform where professors from more than 1 200 universities in 23 Ibero-American countries can create and disseminate their own courses. Since its inception, this platform has grown rapidly and now offers around 200 courses from around 50 universities (www.miriadax.net).

The current debate around the impact of MOOCs is particularly lively. While some see MOOCs as a revolutionary phenomenon that can provide knowledge to every citizen of the world, others are more sceptical of their virtues and point to the many inherent risks to be considered. Some see the rise of MOOCs as “the single most important technological development of the millennium so far” (Hellweg, 2013). Anant Agarwal, president of EDx, claims “it’s going to transform universities; it’s going to reinvent education; it’s going to democratise education on a global scale; it’s the biggest innovation to happen in education for 200 years” (Cadwalladr, 2012). The argument is that as much as technologies have radically changed the music industry, journalism and shopping, they will now radically transform higher education. The expectation is that MOOCs can take the best education to the most remote corners of the world, at zero or very low cost to students, and at very low

marginal costs to providers. This democratisation of knowledge is especially relevant in today's knowledge economy, driven by a growing need for quality education. This holds even truer at a time when financial restrictions in some countries, together with very high tuition costs, are making access to higher education increasingly unaffordable and more exclusive. MOOCs can also be a very powerful tool for professional advancement. It can reinforce the connection of the education system with the demands of the productive sectors and help people access, update and upgrade knowledge throughout their working lives. It also allows students to customise their education with an interdisciplinary curriculum adapted to their specific goals. Finally, it can help expand intellectual and personal networks around the world (Harden, 2013; Hellweg, 2013; Carlson and Blumenstyk, 2012). Despite the many potential virtues of MOOCs, however, many other experts believe they lack a number of important features and face various challenges before they truly transform higher education.

First, one of the main identified weaknesses of MOOCs is the difficulty in granting credits and/or degrees. The nature of MOOCs makes teacher assessment of all participating students very complex and there is therefore no easy way to evaluate reliably a student's mastery of the subject. While a "certificate of completion" is generally issued to the student upon course completion, employers consider it insufficient. In other words, weaknesses exist regarding both the assessment and certification of the knowledge and skills acquired. Some successful assessment experiences based on peer-to-peer evaluation have been developed recently and can be an effective solution, given the right guidance (May, 2012). Some universities have developed a "badge" system. Granted to students who successfully complete a course, the badges serve as an indication to employers on the skills acquired by the individual. Some universities are already considering granting credit (Young, 2013). This has to be based on effective evaluation methods so that others (employers, other universities, etc.) trust that the student actually deserves that credit. While these issues and solutions are still incipient, they can open up new career and learning opportunities if well developed.

Second, the financial sustainability of MOOCs remains unclear. One of the main challenges for MOOCs is rendering financially sustainable a system based on the massive provision of free or very low-cost courses. Indeed, there is no clear business model for MOOCs, although some initiatives are emerging – such as providing courses for free but charging for assessment and accreditation, or charging potential employers to access the profiles and results of students who have authorised it. In addition, the costs associated

with MOOCs may become unaffordable for many universities: some platforms charge entry costs, setting up and/or maintaining the online infrastructure can incur very high fixed costs, and the labour costs associated with the high number of professors' hours devoted to MOOCs – which, according to recent studies, appear substantially larger than traditional campus responsibilities – are also significant (Kolowich, 2013).

Third, completion rates in MOOCs remain very low. A large proportion of students drop out at early stages of the course and low performers often fall behind. On average, fewer than 10% of MOOC students complete a course (Jordan, 2013). The high dropout rate can be explained by different factors, including the low entry cost/opportunity cost of enrolling, the absence of admission standards and the fact that many students underestimate course demands or sign up out of curiosity (Legon, 2013; Quillen, 2013; Young, 2013). It may also highlight that courses delivered exclusively on line may suit highly motivated and skilled students, but not necessarily average or struggling students – who represent a large share of students enrolled in higher education. Their success strongly depends on the closer contact with instructors provided in the face-to-face model, which allows monitoring of students' progress, providing feedback, establishing clear and measurable objectives and encouraging daily work (Legon, 2013; *The New York Times*, 2013). This remains one of the main challenges for MOOCs, which don't appear sufficiently successful at engaging and keeping students interested and need to be better designed not to harm the most vulnerable students – who usually need face-to-face instruction the most (Carlson and Blumenstyk, 2012). One answer to this could be to feature course mentors to assist and check up on students, a solution with which some platforms are already experimenting (Young, 2013).

Finally, MOOCs are not able to successfully recreate a number of aspects of the face-to-face, on-campus university experience that are very relevant to the educational experience. Higher education involves a wide range of learning experiences. It goes far beyond the direct delivery of information – it is also about building learning relationships with students and professors, learning how to live independently and developing the whole person emotionally, socially, intellectually and academically (Carlson and Blumenstyk, 2012; Fowlkes, 2013). Additionally, there are many fields of knowledge, such as medicine and engineering, where hands-on laboratory and practical experiences are essential and a fully online delivery method is therefore perceived as less reliable (May, 2012).

To summarise, the debate around MOOCs is open and lively. There are many expectations about the groundbreaking opportunities they can create, as well as uncertainties about their limitations, risks and potentially disruptive effect on the current higher education model. Some see MOOCs and the changes they bring as leading “to the most beneficial, most efficient, and most equitable access to education that the world has ever seen” and believe this opens up a whole world of opportunities for students (Harden, 2013). Others believe that MOOCs do not open the door to quality higher education for everybody. They hold that the current format only benefits bright, disciplined and motivated students with clear educational goals, and fails to encourage and effectively train average or low-skilled students (Legon, 2013). They also believe MOOCs fail to incorporate some essential aspects of the on-campus experience into the educational trajectory. One of the main uncertainties around MOOCs is their potentially disruptive effect on universities. Many experts believe the changes brought about by new technologies will lead to a world where access to university education is free for everyone, where the residential college campus – in higher education models where this is the prevalent pattern – becomes outdated and largely fades, and where many universities, especially middle-tier universities, will tend to disappear, along with many professors (Harden, 2013). Others defend the value of the on-campus experience and face-to-face contact with instructors. Some of their main concerns over the disruptive effect of MOOCs relate to the risk that the university model will become centralised, perhaps even leading to a monopoly, as happened with the main technological companies. They also point out that universities’ need for funding could lead to their acting against the public good or against college principles (Kolowich, 2013). They highlight the risks of moving toward a two-tiered model, with the elite going to high-quality campus universities and the rest enrolled on line. Finally, they underline the risk that many universities and jobs may disappear (Carlson and Blumensyk, 2013).

All in all, whether or not MOOCs represent a revolutionary breakthrough, what seems to be true is that they are quietly driving a shift in the way we understand higher education. The hype around MOOCs may need to be somewhat watered down and put in some perspective. Many challenges need to be resolved and understanding the way in which MOOCs have influenced higher education will take some time. MOOCs have produced unprecedented debate in the field of higher education about teaching and learning methods and have shifted the attention toward new pedagogical models. In fact, their initial impact seems to be a tendency toward a more “hybrid” or “blended” model of higher education that explores how to better combine the benefits of

face-to-face, on-campus education with the enormous possibilities offered by new technologies. While MOOCs may not end with universities, they will very likely change the way they look and are silently revolutionising the way we see higher education.

A new paradigm for higher education?

A rapidly changing global context, mainly driven by the forces of globalisation and technological change, is challenging the current paradigm of higher education. The transformations of the global economy are imposing different pressures on the current model. First, there is an increasing competition among higher education providers. This holds especially true in a world where knowledge is ubiquitous and can be shared at a close to zero cost, and where innovation takes place at a faster pace, leading to the emergence of new models of higher education delivery (Barber et al., 2013). Second, the costs of higher education are rising, both for students and institutions themselves. Many HEIs face financial pressures and the sustainability of their business models is in question. Students face rising higher education costs at the same time as the returns from higher education seem to be falling, mainly owing to the changing patterns of demand for skills and knowledge in the global economy biased toward technical skills and an expanding number of students around the globe undertaking higher education (Barber et al., 2013; Helmeid and Vincent-Lancrin, 2014). In this context, the growing impact of ICTs remains as one of the main transformative forces of the current model and also opens up new possibilities for understanding higher education.

The incorporation of ICTs is transforming the way we understand teaching and learning in higher education. Yet the OECD concluded that by the mid-2000s, ICTs had successfully penetrated tertiary education, but not so much the pedagogic fundamentals of the classroom (OECD 2005). In fact, while e-learning has generated some changes, it has not led to the radical revolution in higher education foreseen by many (Helmeid and Vincent-Lancrin, 2014) – a fact that might have somewhat changed in recent years. The potential benefits of e-learning are numerous and can be further enhanced in the context of the continuously emerging new developments and experimentations in the field (Helmeid and Vincent-Lancrin, 2014). The literature recognises the many implications of the latest developments in higher education. These include not only the emergence of MOOCs, but also the appearance of new higher education models, as well as new theories about pedagogies and the role of information, education and knowledge in an increasingly knowledge-based economy and society.

New digital technologies are changing the ways in which knowledge is produced, shared and transmitted, with an increasing inclination toward “blended” or “hybrid” models of teaching and learning. A hybrid/blended course is one that “integrates online with traditional face-to-face class activities in a planned, pedagogically valuable manner” (Allen et al., 2007). “Blended” education refers to the combination (in any proportion) of online and face-to-face experiences and incorporation of technologies to supplement, transform and improve the learning and teaching experience. Empirical studies generally show that blended learning actually improves the learning and teaching experience. A 2010 study by the U.S. Department of Education showed that students who were exposed to a combination of face-to-face and online education were more successful than students who were fully involved in either one of the methods (Hosler, 2013).

Blended models of teaching and learning are altering roles in higher education. Teachers, students and the networks they form have a different function and the “blended” classroom is understood differently from the traditional classroom. In particular, “flipping the classroom” has recently gained traction as a particular feature of blended learning. This refers to a modification in the functions and order of traditional teaching and learning, by which students do the coursework at home – watching video lectures, interacting on line, etc. – and then perform their homework in the physical classroom, where they discuss problems with the instructor. In other words, students follow lectures at their own pace individually, but interacting with others on line, after which the teachers work with the students face-to-face during the classroom period to resolve doubts, study the material together, or interact and solve problems as a group. Under this model, the role of the teacher becomes “more focused on the development of skills and attributes and on high-quality assessment and comprehensive feedback, rather than on the dissemination of content” (Peck, 2013). Students also play a different role, working at their own pace and interacting with others to exchange views, collaborate, dynamically update content and create knowledge. The network of learners becomes a network of knowledge creation. Siemens and Downes have coined this “connectivism” (Siemens, 2005) – the thesis that “knowledge is distributed across networks of connections, and therefore learning consists of the ability to construct and traverse those networks” (Downes, 2011). Another concept is social learning – the learning experience that can occur through technology and by which students and professors can communicate through new channels, such as online discussion forums, wikis, chat sessions and Twitter (Helmeid and Vincent-Lancrin, 2014).

All in all, new ways of teaching and learning are emerging that bring about opportunities and challenges in higher education. New technological and pedagogical developments – mobile learning, gamification, the evolution of MOOCs toward the so-called MOOCs 2.0, etc. – show that teaching and learning are constantly evolving and that we are experiencing a deep transformation which opens many new opportunities and challenges the current state of affairs.

One of the consequences of all these changes is the appearance of new priorities for HEIs, which will determine their future strategies and evolution. HEIs will need to evolve in order to respond to a context where students have increasingly diverging profiles and needs (Helmeid and Vincent-Lancrin, 2014). Thus, the higher education landscape will be characterised by higher diversity of both students and institutions. Universities will probably have to find their niche among potential student groups and prove their quality in whatever role or field they choose to perform (Barber et al., 2013). Their value added will not be so much the content itself – which is increasingly accessible from anywhere – but the way in which it is transmitted, the interactions among students fostered by the university, the quality of teaching and mentoring, or the path from university to the labour market (Barber et al., 2013). Other issues are also becoming increasingly relevant, such as closing the gap between theory and practice – since both should have a relevant place in university curricula in a knowledge economy – and flexibility in the way degrees are taught, beyond the standard three-to-four-year full-time degree – as learning and work are more and more combined throughout the working life cycle, both at beginning and later career stages (Barber et al., 2013).

All these elements are fostering the gradual emergence of new models of higher education, a trend which is likely to accelerate in the future. New university models are emerging in an attempt to benefit from and/or adapt to the changing conditions resulting from globalisation and the digital revolution (Barber et al., 2013). According to Helmeid and Vincent-Lancrin (2014), the expansion of e-learning in tertiary education will unfold in four ways: there will be a further development of virtual universities; existing institutions will build or enhance branch campuses that offer online education; some institutions will build up consortia to share costs and the reputational risk of online provision; and some commercial enterprises will also offer higher education. For Barber et al. (2013), the higher education landscape is likely to evolve into five types of HEI: the elite university, which will continue to attract the most talented students, professors and researchers and will need to adopt new technologies – which may be also a way to consolidate and expand their leading position; the

mass university, which will provide education to a rising middle class, using mainly online or blended methods, and will emerge from some traditional universities in developed countries or be founded in developing countries; the niche university, which will focus on an educational field or potential student segment, aiming to provide a more personal and specific learning experience; the local university, which can play a role in the development of the local or regional economy or be the local provider of a large elite university; and the lifelong learning mechanism, which could recognise the skills and knowledge acquired by individuals throughout their life and through which they could receive a university degree without actually attending a university.

Overall, while barriers to change persist in the higher education landscape, important transformations will very likely take place in the near future. Some obstacles – such as regulatory regimes (which in many countries still reflect the model of the traditional university), university rankings (which favour existing universities and their functioning model) and the power of incumbents – may hold back some potential changes in the higher education system (Barber et al., 2013). In any event, whether change will take place in the form of steady developments or as sudden transformations, e-learning is growing and higher education is on the verge of something new.

Changing patterns in higher education in Latin America: Challenges and opportunities

The consequences of the expansion of e-learning in higher education are global. In a knowledge-based global economy, the transformative power of new and emerging e-learning trends is likely to affect regions different to those where e-learning originated (mainly the United States). First, one of the defining trends of emerging e-learning modalities is their capacity to reach every corner of the world. Domestic higher education systems will therefore be challenged by nationals' growing ability to enrol overseas. Second, other regions do not want to lag behind and are increasingly incorporating new technologies and developments in their national higher education systems.

This section analyses Latin America's positioning in this evolving environment and the challenges and opportunities presented by the global expansion of e-learning. It begins by examining the main projections on the incorporation of online learning into the region's higher education system. It briefly analyses the costs and the challenges of not adopting them, on the current

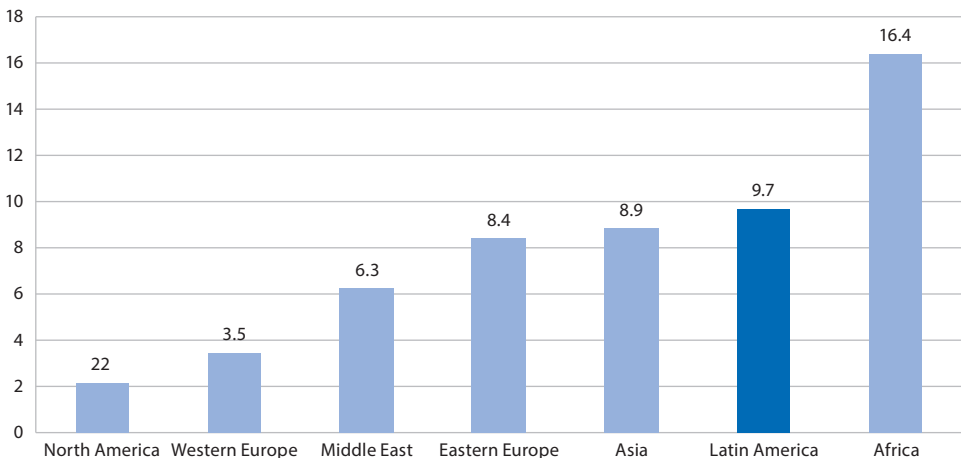
nature of the region's universities. It then focuses on some specific areas of the higher education system that present particularly challenging issues for the region, and where e-learning can bring about some transformative opportunities.

E-learning in Latin America: Jumping on the bandwagon?

According to recent projections, e-learning in Latin America will expand strongly over 2013-18. While e-learning has mainly expanded in developed countries, developing economies are now rapidly adopting e-learning. In fact, the market is expected to grow in all developing regions above the projected 4.4% global average (Ambient Insight Research, 2014). Between 2013 and 2018 Africa will grow at 16.4%, Latin America at 9.7%, followed by Asia (8.9%), Eastern Europe (8.4%) and the Middle East (6.3%) (see Figure 2.3). Although e-learning in Latin America is expected to expand relatively more than in most developing regions, the expected size of the e-learning market in 2018, around USD 2.4 billion, will still be well below that of North America (USD 27.2 billion), Asia (USD 12.1 billion) and of Western Europe (USD 8.4 billion). In fact, no Latin American nation appears among the top ten (including seven Asian) countries worldwide with higher expected expansion of e-learning (Ambient Insight Research, 2014).

In this context of global and regional expansion, the region faces two main risks, associated with adapting to the growing global “ecosystem” and

Figure 2.3. E-learning in 2011-16; five-year projected growth rates by region



Source: Data from Ambient Insight Research (2013), “The worldwide market for self-paced eLearning products and services: 2011-2016 forecast and analysis”.

adopting e-learning regionally. Some experts see the most recent developments as a disruption that will change the way universities look today. The increasing global competition on higher education this will entail – with a new business model, enhanced global access to quality education and potentially lower costs – will challenge the financial viability and even rationale of many traditional Latin American campus-based HEIs, which will risk disappearing (Mazoue, 2013). Thus, the potential evolution of the higher education landscape and new priorities apparently emerging for HEIs are very relevant to universities. This is especially true in Latin America, where the traditional university model is predominant.

In addition, universities risk lagging behind by failing to incorporate some of the major advances in teaching and learning offered by ICTs. Higher education systems in Latin America could thus rapidly become obsolete and ineffective in training their students to participate in the global economy. A failure to incorporate e-learning would also limit its potential alleviating impact on some of the main challenges faced by higher education systems in the region. To summarise, while e-learning – and the rapid changes ICTs are bringing to higher education – presents an inherent challenge, it also presents part of the potential solution to existing and emerging challenges. We explore this in the next section.

Challenges and opportunities: E-learning as a chance to strengthen higher education in the region

Higher education in Latin America faces important challenges that can be partially remedied by an effective and adequate incorporation of e-learning practices. We explore these challenges in this section, structured around access to education, quality of education and the education system's link with the productive sectors.

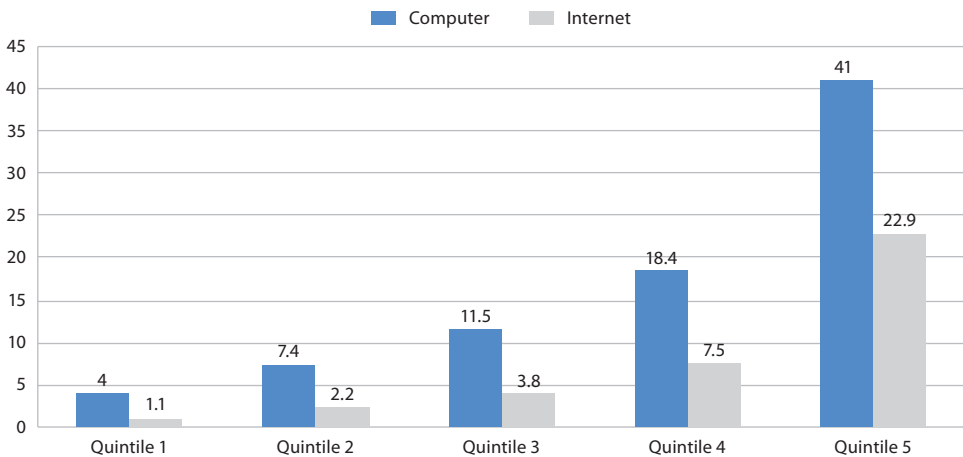
Access to higher education

One of the most promising aspects of e-learning is its potential to allow large segments of society to access higher education. This is particularly relevant in a region where access remains limited and relatively exclusive, for reasons related to income, educational and family background and geographical location. Education can be one of the best socio-economic equalisers, with a remarkable impact on upward social mobility. E-learning, which imposes lower barriers based on income, origin or geographical location,

represents a potentially powerful tool to reduce inequalities in access to higher education. Not only does it open access to traditionally excluded populations, it also promotes course completion: learning environments that are flexible in terms of schedules, location and pace introduce a degree of flexibility for students with a higher drop-out risk. Evidence shows a substantial correlation between risk factors for not accessing or abandoning higher education (such as low income, lower family status, disabilities and working) and students' preference for the participation on e-learning (Pontes et al., 2010).

However, the role of e-learning in democratising access to higher education can be hindered by the existence of a “digital divide” whereby access to ICTs varies widely across socio-economic groups. In particular, and despite recent improvements, the richest quintile has much greater access to computers (41%) and the Internet (11%) than the poorest quintile (4% have access to computers and 1% the Internet) (Figure 2.4). We see a similar picture when broken down by education level (which to a great extent depends on family background): while 51% of the most educated quintile have access to computers and 29% to the Internet, only 1% of the least educated quintile has access to computers and virtually none to the Internet (Figure 2.5). One additional figure underpins this view that access to ICTs remains limited to

Figure 2.4. Access to ICT in % by income quintile, Latin America*

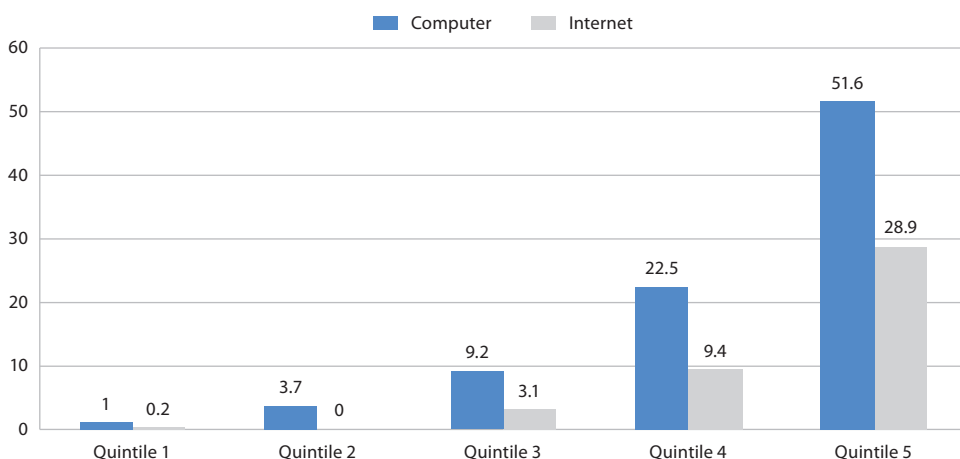


*Calculated as a simple average of seven selected countries: Brazil, Costa Rica, Chile, El Salvador, Honduras, Mexico, Paraguay.

Source: Balboni, M. et al. (2011): “ICT in Latin America: A microdata analysis”, ECLAC, Santiago, based on the OSILAC ICT Statistical Information System.

certain groups: while the cost of access to fixed broadband as a percentage of gross national income per capita is 0.4% in the United States and 1.1% in Canada, costs are generally much higher for Latin American countries (from 1.5% in Uruguay and 2% in Brazil to 22.8% in Nicaragua and 81.9% in Haiti) (ITU, 2012). All this shows that the potential of e-learning to promote more equal access to higher education is limited by the digital divide. Thus, without the right policies to improve access to ICTs, e-learning can lose its capacity to equalise opportunities and, conversely, replicate existing inequalities.

Figure 2.5. Access to ICT in % by education quintile*, Latin America**



* Education quintiles correspond to quintiles of the average education years of adults within the household.

** Calculated as a simple average of seven selected countries: Brazil, Costa Rica, Chile, El Salvador, Honduras, Mexico, Paraguay.

Source: Balboni, M. et al. (2011): "ICT in Latin America: A microdata analysis", ECLAC, Santiago, based on the OSILAC ICT Statistical Information System.

Additionally, one of the main sources of success for students is the networks they build at residential college, something that is more difficult to achieve for learners accessing higher education through e-learning. Networks of students and professors built throughout college life partly explain success after graduation. In principle, those who can gain access to higher education through e-learning will not have access to these networks, although it is not yet entirely clear whether the kind of networks that can emerge in the context of e-learning will have less impact on economic success than those established during college.

Finally, MOOCs as they are understood today favour motivated, highly skilled students while average or less prepared students, generally from more disadvantaged socio-economic groups, struggle to succeed. The students who can gain access to higher education through MOOCs are probably those who would benefit the least from them, at least in the way they are conceived today. Average or below-average students are generally the least motivated and lack the necessary confidence, background, preparation, skills and knowledge, so that they struggle to progress without the support and guidance they would receive in a traditional university. Students from more advantaged socio-economic backgrounds are more likely to have those characteristics, and MOOCs as they are currently understood could actually favour them. Thus, further reflection about how MOOCs could improve access for less advantaged students is very relevant from a public policy perspective.

All in all, e-learning has enormous potential to equalise opportunities and promote social mobility through access to quality higher education. However, existing divergences in access to ICTs can limit access to e-learning. Policies are required to tap this potential and ensure that e-learning modalities do not exacerbate existing socio-economic inequalities.

Quality of higher education

E-learning incorporates new methods of education that use technologies to support and enhance teaching and learning. New pedagogical methods are emerging alongside the technological innovations. Technology is increasingly combined with certain aspects of face-to-face education methods to improve teaching and learning; indeed, evidence shows that blended models enhance learning (Means et al., 2010). This is especially relevant in a region where the quality of higher education remains low in relation to international standards and where the use of ICTs to support teaching and learning is still relatively limited, so that there is great potential to increase the quality of education by improving delivery methods. However, it bears noting that the success of “blended learning” rests in great part on training teachers in the appropriate delivery methods (Hosler, 2013), which requires policies to that effect.

MOOCs in particular have a strong potential to raise quality standards in the region: they facilitate access to the best and more renowned lecturers in the world, promote contact with experts and networks of students and teachers, and facilitate a combination of learning sources and methods that optimise individual learning needs. In Latin America, average higher education quality levels are low and divergences in quality levels across HEIs significant. Access

to higher quality HEIs is often difficult (owing to income or geographic barriers, the need to combine work and education, etc.). MOOCs have a strong potential to raise the quality of learning received by people lacking easy access to higher quality institutions. They can also offer extraordinary opportunities both for teachers and students to network with peers, thereby enhancing the quality of learning and teaching with feedback, discussions or collective problem solving. Finally, MOOCs favour the design of learning paths adapted to individual learning needs, greatly enhancing the quality of the student learning experience.

The expansion of the global higher education “ecosystem” will bring stronger competition which, if well channelled, can effectively enhance quality. One of the most uncertain issues around e-learning is the extent to which it represents a disruptive innovation that will compromise the survival of many HEIs and teacher positions. An in-depth debate about how institutions can differentiate themselves and focus on their comparative educational advantage – concentrating on areas where they have more expertise and can provide higher quality education, as well as adapt knowledge to the particularities and needs of the local context – can effectively result in raising the quality of higher education. This seems especially relevant in a region where HEIs have proliferated in the last decades, but where few universities appear in global quality rankings. This stronger competition is also expected to free up human resources that could be used in specific research areas – particularly teaching needs and technical training – that could also improve the quality of education.

Link with labour markets

E-learning facilitates the responsiveness of the education system to the changing demands of the productive system. A remarkable aspect of e-learning is that it favours the update and upgrade of knowledge throughout people’s working lives. Thus individuals have more flexibility to adapt to the changing demands of the productive sectors and succeed in the job market in an increasingly knowledge-based economy where learning is a continuous, lifelong process. This issue is particularly relevant in Latin America, where around 37% of employers claim they have difficulty finding an adequately educated workforce (OECD/ECLAC, 2012).

In this context, e-learning has gained traction as an option for workplace training. Companies see it as a way to align workers’ competencies quickly and effectively with changing market conditions. Thus corporate e-learning

is increasingly used as a training method. A study by Towards Maturity (2011) surveying successful companies around the world showed that 80% of employers relied on e-learning courses, making it the most popular learning technology in 2011. Around 77% of firms recognised that applying technology to learning effectively helps companies respond to changing market conditions and demands, demonstrating e-learning's effectiveness as a tool to continuously adapt worker skills and competencies to the evolving productive sectors.

Finally, e-learning practices train workers in using both ICTs and new methods of learning and interrelating that replicate workplace interactions. E-learning is very much connected to the dynamics of labour markets. On the one hand, students are in close contact with ICTs and use them as part of their problem-solving toolbox, which is one of the challenges they will face during their working life and an employer requirement (IDB, 2012). On the other hand, the interaction that takes place in the context of e-learning presents students with situations where they have to think critically, exchange opinions, work in groups, solve problems and develop ties. These "soft skills", largely demanded by employers, are scarce among Latin American workers (IDB, 2012; OECD/ECLAC, 2012). Finally, the independence provided by e-learning in general, and MOOCs in particular, can be an effective way to test certain characteristics – such as responsibility, commitment and proactivity – that will be valuable to students throughout their working life.

Notes

1. The term OER was coined by UNESCO in 2002 (UNESCO, 2002).
2. The OCW Consortium defines an OCW as "a free and open digital publication of high quality university-level educational materials. These are organised as courses, and often include course planning materials and evaluation tools as well as thematic content".
3. The report by Allen and Seaman for the Babson Survey Research Group is based on a sample of all active, degree-granting institutions in the United States, and thus contains 4 427 institutions.

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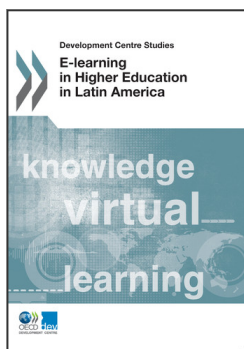
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