Development Centre Studies

E-learning in Higher Education in Latin America

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Foreword

Higher education plays a central role in development and is an important issue for the ongoing work of the OECD Development Centre in Latin America and the Caribbean.

This report falls within that framework and was drawn up as a result of an agreement between the *Centro Superior para la Enseñanza Virtual* (CSEV) and the OECD Development Centre. The CSEV played a key role in the production of the report, both through its financial contribution as well as through its intellectual support. This reflects the commitment of both the CSEV and the OECD Development Centre to expanding knowledge about higher education and the opportunities for development brought about by new technologies.

The purpose of this report is to better understand the main challenges faced by higher education in Latin America, to analyse how information and communication technologies are being incorporated into higher education, how they are transforming it, how they can have an impact in the region. The report attempts to shed some light on these areas by providing new and original information stemming from a survey of Latin American higher education institutions and from a series of interviews with regional experts.

Acknowledgements

This report was drawn up by the OECD Development Centre as a result of an agreement with the *Centro Superior para la Enseñanza Virtual* (CSEV), based in Spain.

The report was co-ordinated by Juan Vazquez Zamora, an economist at the Americas Desk of the OECD Development Centre, and was supervised by Christian Daude, former Head of the Americas Desk. The report was written by Juan Vazquez Zamora, with the exception of Annex A, written by Ricardo Cuenca, an external consultant to the OECD who is a researcher at the Institute for Peruvian Studies.

We would like to express our gratitude to CSEV for its precious financial contribution to this project and its involvement through all stages of production. Special thanks go to Marta Cáceres (Director of Project Design and Development), David Gago (Director of Analysis and Prospective Issues), Myriam Resa (Director of Project Management and Execution), Elena Rodríguez (Deputy Director for Planning and Institutional Relations) and Daniel Torres (Director General). Their commitment, contributions and firm motivation have been vital for the successful completion of the report.

In addition, the report would not have been possible without the support, effort and contribution of numerous individuals and institutions who have participated with comments, inputs and advice. Special thanks go to Christian Daude (Senior Economist) and Rolando Avendaño (Economist) from the OECD Economics Department and the OECD Development Centre respectively, to Laura Recuero and Javier Pinzón, formerly working at the OECD Development Centre and who supported the project at its initial stages, Stephan-Vincent Lancrin (Senior Analyst), Carlos Gonzalez Sancho (Analyst), Michele Rimini (Consultant) and Karine Tremblay (Senior Analyst) from the OECD Directorate for Education who provided invaluable comments to the substance of the report. Similarly, the production of this book would not have been possible without the excellent contribution of Romy de Courtay, who edited the

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The draft of the report was supervised by a steering committee, which provided extensive and insightful comments as well as guidance and supervision to the overall direction of the study. Some members of the steering committee have already been mentioned: Ricardo Cuenca, David Gago, Stephan-Vincent Lancrin and Myriam Resa. The rest of the committee included the following members: Teresa Aguado (Vice-rector for Internationalisation and Co-operation) and Dolores Díaz (Director of International Relations) from the National University of Distance Education (UNED), in Spain; Carlos Bielschowsky (President of the Iberoamerican Association of Distance Higher Education (AIESAD) and Director of CEDERJ, in Brazil); and Judith Zubieta (Coordinator of the Open and Distance Education University of the Universidad Nacional Autónoma de México [UNAM]). Acknowledgements go to all of them for their key contribution to the report.

One of the original contributions of this report is the evidence it provides resulting from the survey of universities in Latin America and the Caribbean. Therefore, a particularly relevant mention goes to the 34 universities that took the time and effort to respond to the questionnaire, especially those in charge of actually responding to it. The list of universities ordered by country is the following. From Argentina: Universidad de Buenos Aires (UBA XXI), Universidad de Mendoza, Universidad Nacional de Córdoba, and Universidad Nacional de Quilmes; from Brazil: CEDERJ, Universidade Estadual Paulista, Universidade Federal de Minas Gerais, and Universidade Rio Grande do Sul; from Chile: Universidad Andrés Bello and Universidad Católica de Valparaiso; from Colombia: Universidad Escuela de Administración, Finanzas y Tecnologia (EAFIT), Universidad Nacional Abierta y a Distancia, Universidad Santo Tomás, and Universidad Tecnológica de Pereira; from Costa Rica: Universidad de Costa Rica and Universidad Técnica Nacional de Costa Rica; from Ecuador: Escuela Politécnica del Ejército, Universidad Politécnica Salesiana, and Universidad Técnica Particular de Loja; from Mexico: Centro Interamericano de Estudios de Seguridad Social, Tecnológico de Monterrey, Universidad Autónoma de Nuevo León, Universidad de Guadalajara (Sistema de Universidad Virtual) and UNAM; from Panama: Universidad de Panamá and Universidad Tecnológica de Panamá; from Paraguay: Universidad de Villarrica; from Peru: Pontificia

Universidad Católica del Perú and Universidad Peruana Cayetano Heredia; from the Dominican Republic: Instituto Tecnológico de Santo Domingo (INTEC) and Universidad Abierta para Adultos (UAPA); from Uruguay: Universidad de la Empresa and Universidad de la República; and from Venezuela: Universidad Rafael Belloso Chacín.

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Preface

The relevance of higher education for economic and social progress is unquestionable, particularly in a globalised, knowledge-based economy. Skills are a major driver of labour productivity and of an economy's ability to sustain its competitiveness and escape development traps. Developing the right sets of cognitive and non-cognitive skills has emerged as a major determining factor for people and economies to participate meaningfully in the global economy. As stressed in the OECD Skills Strategy, "skills have become the global currency of the 21st century".

Yet higher education in Latin America faces many challenges. Access has expanded substantially in the last decade, but it is still relatively low and unequal across socio-economic groups. Quality is poor when compared with international standards, and there are large differences across higher education institutions. The link with labour markets is often weak, with significant gaps between the labour demands and the skills that higher education supplies. And the financial sustainability of higher education systems is sometimes becoming a concern in the face of increasing international competition and rising costs.

Globalisation and technological change are transforming higher education. Advances in information and communication technologies (ICTs) are bringing about new opportunities and having an impact on teaching and learning methods, mainly through what is commonly known as "e-learning". New approaches are emerging, with an increasing reliance on "blended models" that combine elements of face-to-face education and online modalities in different proportions. The roles of teachers, students and universities are also being transformed. In this context, Latin America has a great opportunity to benefit from the potential advantages of these developments, and to make the most of them as a way to alleviate the challenges facing higher education.

This report aims to improve the understanding of where Latin America stands regarding the integration of ICTs into higher education and the challenges and opportunities that e-learning is bringing about. The original information, resulting from a survey of 34 Latin American universities and interviews with experts, shows that the region is integrating e-learning into higher education at a slow pace, and that pedagogic methods have not been substantially transformed. The report discusses what role public policies can play to boost the impact of e-learning in the region, as part of a broader debate on the role of higher education institutions in Latin America in a changing global context. In that sense, this report also provided relevant information for the elaboration of the *Latin American Economic Outlook 2015*, which focused on education, skills and innovation.

Mario Pezzini
Director
OECD Development Centre

Executive summary

Higher education is one of the main drivers of economic development and social progress, and a key dimension for a sustainable and inclusive development path in Latin America and the Caribbean.

Higher education in the region has experienced important developments in recent decades. One of the most remarkable events has been the expansion of access, which almost doubled in the period 2000-10. Higher education institutions (HEIs) have proliferated in response to a larger demand for higher education due to economic growth, an expanding middle class and a larger component of knowledge-based activities in the economy. This has been accompanied by a more prominent role of private provision of higher education and an increase in female participation.

Higher education in the region has experienced important progress but still faces many challenges.

At the same time, higher education in the region faces many challenges. First, there are large inequalities in terms of access and performance due to factors such as income, educational and family background, geographic location or ethnic origin. The "digital gap" (i.e. the unequal access to information and communication technologies [ICTs]) is another source of inequalities. Second, the quality of higher education remains low and Latin American universities perform poorly when compared internationally. The expansion of higher education has taken place at the expense of quality in some cases. Third, despite the importance of higher education in meeting the needs of the economy, there is a significant gap between the demand of the productive sectors and the skills provided by the education system. Fourth, increasing international competition, as well as rising costs, is putting pressure on the financial sustainability of the system.

All these challenges stand out in a context where ICTs are being incorporated more rapidly into higher education, with new forms of teaching and learning that can be broadly understood as "e-learning" (i.e. "the use of information and communication technology to enhance and/or support learning in tertiary education", OECD, 2005).

E-learning has expanded globally in recent times. One of the phenomena that have emerged strongly are massive open online courses (MOOCs). Many see MOOCs as a transforming force of higher education, as they have the potential to democratise education by expanding access to it to every citizen in the world, as well as raising quality and providing opportunities for a more flexible career path in closer connection with labour markets. But they also involve many challenges. First, MOOCs do not grant credits and/or degrees, given the difficulty to assess students' acquired knowledge and skills. Second, their financial sustainability remains unclear, as MOOCs are based on the massive provision of free or very low-cost courses. Third, drop-out rates are high, mainly owing to low entry costs and difficulties for some to follow an online method. Finally, MOOCs fail to recreate some aspects of the face-to-face on-campus university experience.

E-learning can have an impact in higher education in Latin America, and the results from a survey and a series of interviews show that the region is lagging behind and that policies can help to make the most of it.

Altogether, the current paradigm of higher education is being challenged by the numerous changes posed by globalisation and technological change and by the rise of e-learning. This is particularly relevant for Latin America, where e-learning is expected to expand in the coming years, and where it can have a positive impact, though with some cautions. Understanding where the region stands in this process is key to realising its capacity to grasp the opportunities that emerging teaching and learning methods create and to understanding where particular challenges lie ahead. This is an area where information is scarce, and this report attempts to fill the gap by adding new and original information resulting from a survey among HEIs and a series of interviews with experts.

The survey was conducted among 34 Latin American universities and reveals some interesting results. First, face-to-face education is still highly prevalent being the predominant model in 65% of the universities, compared to 16% with a predominant hybrid model and 19% centred on e-learning.

However, e-learning is expected to expand as most universities either have an e-learning strategy in place or are developing one. Second, access of traditionally excluded groups has expanded, benefiting most those living in rural areas, women and people with low resources and disabilities. Third, most e-learning programmes are not accredited by national authorities – only around a third of universities have all their e-learning programmes accredited – and thus lack an important mechanism for guaranteeing good quality. Fourth, only 26% of universities believe their e-learning offers focus on areas of strong labour demand. Finally, costs associated with both the development and operation of an e-learning system are high, and 38% and 25% respectively of universities state they do not cover them.

A series of interviews with experts in the region shows consensus on several ideas. The incorporation of ICTs in the region is still low, and they have been incorporated mainly to improve management systems or gain efficiency but have not substantially transformed pedagogic methods. New teaching and learning methods have barely penetrated the region and many HEIs are still reluctant to adopt them. Also, e-learning has great potential to help overcome the challenges of higher education in the region by expanding access, improving quality and connecting the education system better with labour market demands. Finally, policies can have a strong impact on unleashing the potential of e-learning and ICTs. The regulatory framework in the region is generally rigid and restrictive and does not favour the adoption of ICTs and the transformation of educational methods. Technological infrastructure is costly and it is important to find ways to finance it and foster partnerships at different levels for a shared financing. Teachers' training is key to reaping the potential of e-learning and truly transforming teaching and learning methods.

All this suggests a number of strategic policy areas to which the public policy debate should devote more attention in the coming years. First, it is relevant to increase the availability of ICTs and reduce the gaps in access to them, as well as to implement regulations to pave the way for an easier adoption. Second, it is crucial to increase the reputation of e-learning methods and underpin their quality levels by adopting quality assurance measures and by training teachers in new pedagogic methods. Finally, a reflection should be made on the new roles of HEIs in the context of globalisation and technological change which are transforming higher education, and on what kind of preparation is needed for students in the 21st century.

Conclusions and strategic policy areas

Higher education is a key driver of development and social progress, particularly in the context of a knowledge-based global economy and society. However, Latin America performs poorly in many of the main dimensions of higher education: access has increased but is still low and unequal across socio-economic groups; quality is low, especially when compared with international standards; the pertinence of higher education is questionable, given the large difficulties that firms in the region face to find an adequate workforce; and the financial sustainability of the higher education system is under pressure in the face of larger international competition and the large proliferation of HEIs within the region.

In this context, ICTs have been increasingly incorporated into higher education worldwide in order to enhance and/or support teaching and learning, shaping what is more commonly known as "e-learning". New technologies are changing the ways in which knowledge is produced, shared and transmitted, challenging the current paradigm of higher education, and with an increasing inclination towards "blended" models which explore how to better combine the benefits of face-to-face education with the possibilities offered by ICTs. This takes place while the demand for higher education is expected to continue rising, owing to an expanding population and the transformation of the economy and of diversification needs, thus questioning whether the classical university model is ready to face existing and emerging challenges. For Latin America, while under certain circumstances e-learning may exacerbate some of the weaknesses of higher education, it represents above all a unique opportunity to overcome most of the challenges facing higher education.

However, the region seems to be lagging behind in this respect. The evidence presented in this study shows that the face-to-face model is still prevalent and that the expected expansion of e-learning is smaller than in most emerging regions. It also shows that despite some beneficial impact brought about by ICTs, such as improved access for traditionally excluded groups, the region still does not take much advantage of the potential of e-learning and the fundamentals of teaching and learning have not been transformed. The outcomes in different areas can be largely improved: access to e-learning programmes is still low, few programmes are accredited by national authorities and there are insufficient mechanisms to guarantee their quality, e-learning focuses only partially on areas of strong labour demand, and the costs of both its development and maintenance are still too high.

All this suggests that there is considerable room in the region to make the most of the potential of ICT incorporation into higher education and its capacity to overcome existing challenges and to open up new opportunities. Although the

responsibility is shared by different stakeholders – universities, firms, students, entrepreneurs – the role of public policies remains crucial for the coming years and the importance of a public debate around the relevance of higher education and about the incorporation of ICTs and the challenges and opportunities brought about by e-learning is of the utmost importance.

These are some strategic policy areas where reflection and action are needed in the years ahead. In particular:

- Access to ICTs should be broadened, in order to unleash the potential benefits of e-learning and to avoid the deleterious effect of the digital gap. This implies larger investments to adopt new technologies and to adapt existing technologies, which means that more financing is required, and thus a reflection about the complementary role in this area of the public and the private sectors seems very pertinent. It also entails the adoption of regulations that pave the way for an easier adoption of these new technologies and for a more flexible academic environment where the advantages of e-learning can be better developed.
- Quality of virtual methods of teaching and learning should be at the heart of the higher education public policy debate, as it is a crucial dimension to make the most of the potential impact of the incorporation of ICTs. Quality of e-learning needs to be underpinned through better evaluation and accreditation systems, which would eventually foster a better reputation of these modalities. Also, if the incorporation of ICTs is to really transform the way in which teaching and learning take place, training teachers in the use of new technologies and, particularly, in emerging educational paradigms should be a key and strategic priority.
- Finally, in a context of globalisation and technological change, a reflection needs to be carried out about the role of higher education and of universities as such, in order to encourage a shift from traditional to modern university models. The changing context demands new models of university, and this requires new ways of understanding their roles. Universities will have to focus, specialise, co-operate and connect among themselves. From a public policy perspective, the question is not so much whether e-learning will fully replace face-to-face modalities or not, as probably components of both modalities will coexist, but rather to what extent ICTs are incorporated into higher education and how they can be utilised to improve teaching and learning and adapt them to a shifting world and to the changing demands of society.

Reference

OECD (2005), *E-Learning in Tertiary Education. Where Do We Stand?*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264009219-en.

Chapter 1

Higher education in Latin America: Challenges and opportunities

Higher education is one of the main drivers of economic and social development and therefore is crucial for a sustainable and inclusive development path in Latin America. However, the region performs badly in many higher education dimensions and various challenges remain. Access is low and still very unequal across socio-economic groups. The quality of the higher education system is low when compared with that of OECD countries and other emerging regions. The link with the labour market is not very strong and there are important skill mismatches that lock the potential for growth. Finally, the higher education system is subject to increasing financial pressures and competition from abroad. The incorporation of ICTs in higher education presents an opportunity to overcome these deficiencies.

Higher education is one of the major drivers of economic development and social progress, generating both individual and social benefits. It is particularly relevant to increase innovation and to foster the adoption of new production technologies – a prerequisite for maintaining competitiveness in an increasingly knowledge-based global economy (OECD, 2008). The capacity to innovate, to upgrade production and increase its value-added and to create higher-quality jobs is strongly related to the higher education system's ability to expand the available talent pool and upgrade skills. Additionally, not only does higher education enhance social cohesion and social mobility and foster stronger institutions, it also pays off from an individual standpoint. Better educated individuals have better employment opportunities and higher wages; and they also enjoy significant indirect benefits in terms of better consumption and saving patterns and greater health, satisfaction and life expectancy (Brunner, 2013).

Stepping up economic growth in Latin America, as well as attaining a sustainable and more inclusive development path, requires a higher share of knowledge-based activities on the economy, for which a focus on higher education is crucial. Latin America has experienced a recent period of progress and economic growth which has led to an important expansion of national wealth, along with a substantial reduction in poverty rates from 41.5% in 2003 to 29.6% in 2009 (Socio-Economic Database for Latin America and the Caribbean [SEDLAC]).[1] However, the current development model has not been sufficiently inclusive: the expansion has not led to equally large reductions in inequalities, either from an income perspective or from the point of view of access to and outcomes of higher education. Moreover, this expansion has rested largely on external factors – such as the rise of China and India – and the associated external demand for commodities. Given the moderation of global growth, Latin America should consider ways to increase its competitiveness and both upgrade and diversify its productive structure (OECD/ECLAC, 2012; IDB, 2013). Policies to strengthen and improve the higher education system and to make it more responsive to economic and social needs are therefore crucial.

The transformations that higher education is experiencing as a result of the incorporation of information and communication technologies (ICTs) into teaching and learning represent both a challenge and an opportunity for Latin America. Given the relevance attributed to higher education, a reflection about the challenges it faces is really relevant, particularly in light of the new developments associated to the incorporation of ICTs to teaching and learning and the potential challenges and opportunities brought about by e-learning.

This chapter addresses these issues in two sections. The first section describes the current situation of higher education in Latin America and reflects

upon some of the main challenges facing it today. The second introduces the concept of e-learning and presents some general ideas on how it can help overcome these challenges.

A view of recent trends and challenges in higher education in Latin America

Higher education in Latin America has experienced important developments in recent decades; however, many challenges remain unresolved. This section explores these issues in two parts. First, it reviews the main recent trends and draws a general view of higher education in the region. Second, it identifies and analyses the most crucial challenges, i.e. the inequality in access to and outcomes of higher education, its relatively low levels of quality, its link with the productive system, and the financing difficulties it is facing.

Recent trends and state of higher education

One of the most remarkable events in the field of higher education over past decades across the globe – and particularly in Latin America – has been its massification. From a more exclusive academic model, universities have gradually responded to an increasing demand for higher education, stemming from a combination of factors: accelerated economic growth, an expanding middle class, a larger number of secondary school graduates and a higher component of knowledge-based economic activities, translating into higher returns for investments in high-skill human capital (Brunner, 2013; UNESCO, 2009; UNESCO, 2008).

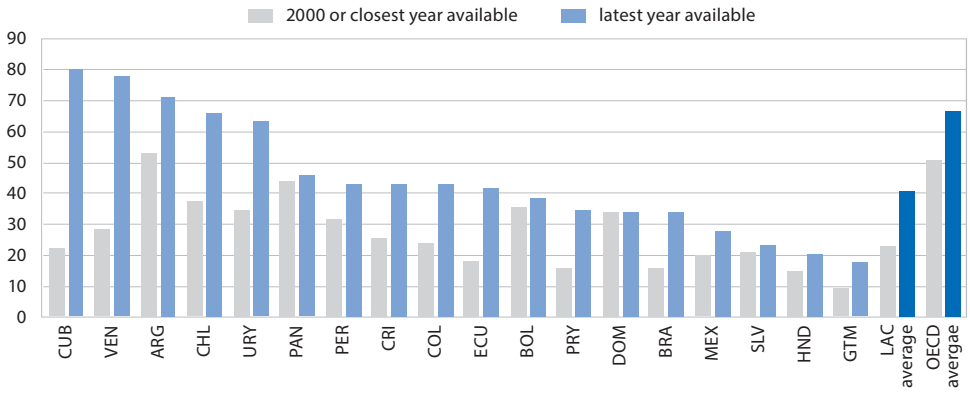
This has translated into an extraordinary expansion of access to higher education in the region. In particular, average gross enrolment ratios for the region almost doubled between 2000 and 2010, from a ratio of slightly above 20% at the beginning of the 2000s to around 40% at the end of the decade. Differences across countries in the region remain quite significant. Cuba, Venezuela, Argentina and Chile showed enrolment rates equal to or above the OECD average. Other countries, such as El Salvador, Honduras and Guatemala, still lagged well behind the Latin American average. Despite progress in the region, the gap between its average enrolment rate (40.5%) and the OECD rate (66.6%) in 2011 was still large (see Figure 1.1).

The expansion in higher education enrolment rates has been associated with a significant enlargement of the private supply of higher education. The increase in demand for higher education has been largely absorbed by private higher education institutions (HEIs), which have grown at a faster pace than public ones. Latin America has the highest percentage (48.6%) of private enrolment in the world (PROPHE, 2010), well above that of the OECD (30%). However, differences within the region are significant. While private institutions in Brazil, Chile, El Salvador, Paraguay and Peru account for over half of higher education enrolment, they have little or no presence in other countries, such as Cuba, Uruguay and Argentina (see Figure 1.2). In some countries, higher education enrolment has mainly expanded through a stepped-up presence of the private sector (Brunner and Ferrada, 2011). Consequently, higher education in Latin America is increasingly commercialised (UNESCO, 2009).

A relevant feature of this expanded access has been the increase in female participation, which has jumped above male participation in most of the region's countries. Around 55% of students enrolled in tertiary education in 2008 were women (UNESCO, 2010). Enrolment across fields of study varies by gender. Women focus more on social sciences, administration, education

Figure 1.1. **Gross enrolment in tertiary education (%)**

Expansion over 2000-11 and comparison across Latin American and Caribbean countries and with the OECD

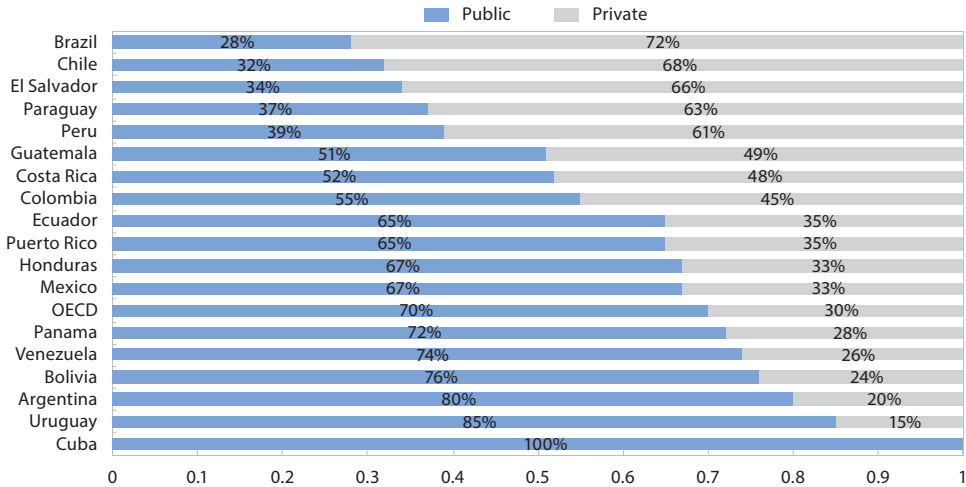


Note: Gross enrolment rates refer to "total enrolment in tertiary education (International Standard Classification of Education 5 and 6), regardless of age, expressed as a percentage of total population of the five-year group following on from secondary school leaving" (UNESCO Institute of Statistics, UNESCO).

Source: based on UNESCO Institute for Statistics (UIS) database, UNESCO, www.uis.unesco.org/Pages/default.aspx.

and services, while men are relatively more present in the areas of science and technology, and engineering, industry and construction (UNESCO, 2010). Female participation is higher than male participation throughout the region, except in Bolivia, Chile and Colombia, where it is slightly lower (Brunner and Ferrada, 2011). However, female participation in the region still remains below the OECD average (UNESCO, 2010).

Figure 1.2. **Enrolment rates in public and private HEIs**



Source: based on UIS Database, UNESCO, www.uis.unesco.org/Pages/default.aspx.

In the last decades, higher education has become more heterogeneous and diverse in terms of types of educational institutions, student bodies, areas of knowledge and regional dispersion. The model of a small number of selective universities has given way to a "diversification into hundreds of institutions with distinct missions and sizes; types of ownership, control and management; programme qualities; selectivity levels; commitment to their environment, local roots or international projection; social composition of their student bodies; expenditure per student, and relations with the state, civil society, and different stakeholders" (Brunner, 2013).

Remaining and upcoming challenges

Today, more people have an opportunity to access and benefit from the positive impact of higher education. However, important gaps still remain in different dimensions of higher education, both within the region and

when compared with other regions. This section explores these deficiencies, focusing on the inequalities in access to and performance in the higher education system, on its quality, on its link with the productive sectors and on its financing.

Inequality in access and performance

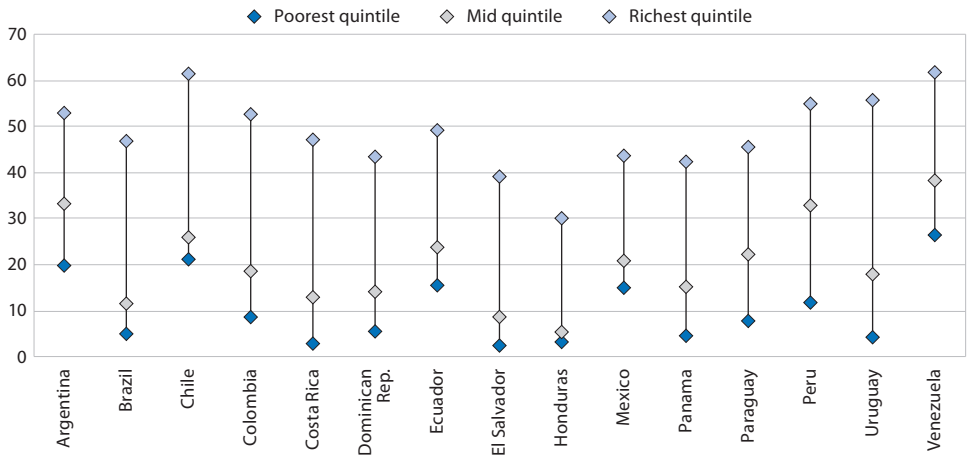
Although higher education has expanded to larger segments of the population, important inequalities in access and performance persist across different socio-economic groups in the region. The increase in access to higher education has not always been distributed evenly across socio-economic groups. In this sense, successful participation in higher education is still reserved for a relatively small segment of the young population. Factors such as income, educational and family background, geographical location or ethnic origin seem to explain much of the divergences across different segments of the population (ECLAC, 2010).

In particular, income remains as a strong determinant of access to higher education. Enrolment rates show significant differences across income groups (Figure 1.3). The poorest quintile rarely shows an enrolment rate above 20%, and even below 10% for many countries in the region. Meanwhile, the richest quintile generally shows an enrolment rate well above 40%, and even above 50% for many countries. Finally, the 10-30% enrolment rates for the mid-quintile further strengthen the idea that access to tertiary education remains far from equitable between income groups, with their enrolment rates being closer to the poorest quintile than to the richest quintile in most countries.

All this suggests that despite the general increase in access to tertiary education in all income groups, inequalities remain large. Some differences in higher education enrolment across income groups stem from their different graduation rates from secondary school and from the strong inequalities among secondary education systems across Latin America (Brunner and Ferrada, 2011). In Chile, for example, income group inequalities in higher education enrolment are significantly larger than in secondary education graduation, indicating that certain additional equity issues arise in the transition from secondary to tertiary education (OECD/World Bank, 2009). Inequalities are present in all the region's countries, although countries such as Argentina, Ecuador, Mexico and Venezuela show relatively smaller gaps in access between the richest and the poorest (Figure 1.3).

Students' performance once enrolled in the higher education system is poor and it also varies significantly across income groups, with large dropout rates mainly among lower income segments. This is partially explained by the fact that the higher education system remains highly fragmented between "elite" universities and the rest. Non-elite institutions have absorbed a great share of students, and in particular those from poorer or less favoured socio-economic backgrounds, thus sometimes further accentuating existing inequalities. In Colombia, for example, the poorest quintile saw proportionally less growth in access than the richest (OECD/IBRD/World Bank, 2013).

Figure 1.3. **Net enrolment rates (%) in tertiary education by income quintiles, 2012 or latest year available**



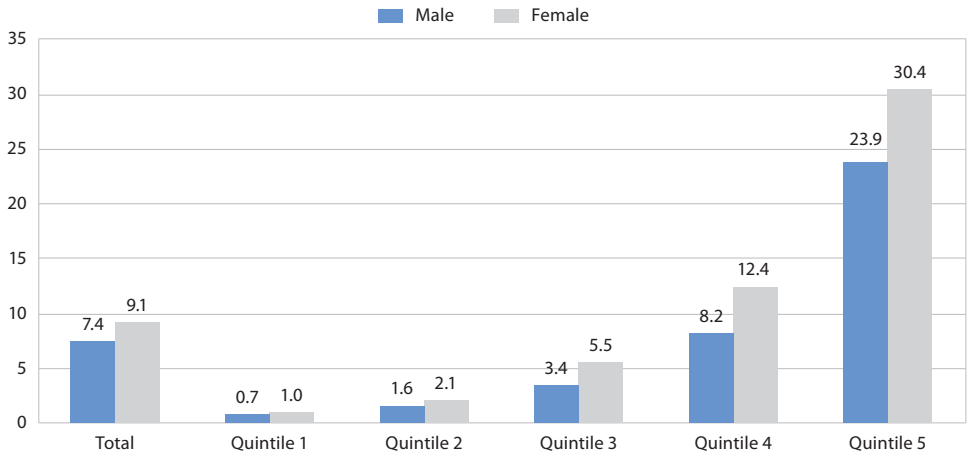
Source: CEDLAS and World Bank (2014), Socio-Economic Database for Latin America and the Caribbean, http://sedlac.econo.unlp.edu.ar/eng.

An analysis of the rates of completion among young people aged 25-29 in the region shows that only 8.3% on average complete at least five years of post-secondary education (the usual duration of a university degree), with a slightly higher completion rate among women than men. When analysed by income quintiles, the differences in completion rates stand out: 27% of students from the richest quintile complete five years of post-secondary education, compared with only 1% of the poorest. Completion rates amongst women are higher across all income quintiles (Figure 1.4) (ECLAC, 2010). A comparison of completion rates with enrolment rates shows that many students drop out during their studies. In fact, according to some studies (ECLAC, 2003; UNESCO-IESALC, 2006) the average dropout rate is around 50%. Some recent

studies (De Wries et al., 2011) question the magnitude of the problem. They claim the dropout rates do not account for the fact that some students leave their degrees to begin other tertiary education studies or access the labour market and argue that the problem is therefore more limited. Nevertheless, dropout rates in the region remain large and affect more deeply students in the lower income quintiles, fostering inequality (UNESCO-IESALC, 2006; OECD/World Bank, 2009). While the reasons behind these dropout rates vary, they are strongly related to socio-economic circumstances. These include not only income, but also the student's cultural background or place of residence and the need to work for self-subsistence or to contribute to the family finances, among others.

Figure 1.4. **Rate of completion of five years of post-secondary education, regional average by income quintile**

(2008 or closest year)



Source: based on ECLAC (2010), *Social Panorama of Latin America 2010*, ECLAC, Santiago de Chile.

New forms of potential inequalities and exclusion are also emerging, such as those related to the "digital gap". The new ICTs are part of today's economies and, as such, they are essential elements of higher education and are increasingly used for teaching and learning. However, differences in access to ICTs are still large across socio-economic groups in the region. Students less familiar with ICTs may face stronger difficulties and more barriers to benefit from the opportunities of their incorporation into education systems. The unweighted average for Latin America for 2008 or the closest year available

shows that 25.2% of households in the richest quintile had access to the Internet, compared with only 1.2% of the poorest quintile (Katzman, 2010). This digital gap risks heightening existing inequalities and excluding students from the opportunities offered by higher education (ECLAC, 2010).

The challenge is for higher education to effectively equalise opportunities and promote social inclusion and social mobility. However, its expansion has been characterised by a "differentiation in the scope of coverage, an increase in the cost of study, and heterogeneity in the levels of quality of institutions of higher education, thus resulting in more exclusion than inclusion" (UNESCO, 2008). The persistence of large divergences in access and attainment across socio-economic groups shows that there is still a big gap which may be a source of reproduction of already existing inequalities.

Quality of higher education

One of the main challenges for higher education in Latin America is related to the fact that its recent expansion has often occurred at the expense of quality. The proliferation of numerous HEIs in response to an increasing demand generally lowered the average levels of quality in different ways: *i)* the influx of students from less educated backgrounds may have affected quality, as some need more support to develop certain competencies and learning habits; *ii)* universities have shifted to a model where teaching is their predominant focus (and in fact, most Latin American HEIs today are teaching-only institutions), which is likely to have a detrimental effect on research activity and knowledge creation; *iii)* the rapid emergence of HEIs in relatively weak regulatory environments may have lessened quality requirements, drawing in inadequately trained teachers; and *iv)* the growing importance of private education is leading to a certain "commercialisation" of higher education, a process by which the student admission mechanism in some universities is uniquely based on the income and capacity to pay fees (Brunner, 2013; Brunner and Ferrada, 2011; World Bank, 2012).

In fact, Latin American universities perform poorly when compared with international institutions. Latin American universities never appear at the top of worldwide university rankings and only a few manage to even be included in these lists. As an example, the Times Higher Education World University Ranking (2014-15)[2] did not place a single Latin American university among the top 100, and only four among the top 400. Additionally, only a few Latin American universities appear recurrently in international rankings, indicating considerable divergences in quality levels among HEIs. This partly explains the

important differences in the economic returns of education among individuals who have completed higher education in Latin America (De la Torre and Messina, 2013). However, other factors at play explain this phenomenon, such as socio-economic background and parental education – which, in addition to other impacts, affect the network to which individuals have access and thus determine their chances of finding good and well-paid jobs –, early childhood factors affecting the ability to learn and discrimination in the labour market against people from certain backgrounds (OECD, 2011). Thus, differences in quality across HEIs can perpetuate existing socio-economic inequalities. In addition, countries in the region have a largely different presence in university rankings. Most top universities are concentrated in Brazil, Mexico, Chile, Argentina and Colombia. As shown by the QS University Rankings in 2014, out of the top 200 universities in Latin America 56 are located in Brazil, 30 in Mexico, 27 in Argentina, 23 in Chile and 24 in Colombia (QS University Rankings, 2014).

Countries' poor performance in these rankings provides valuable information but it fails to capture some relevant dimensions. Thus, alternative measurements of quality of higher education could be developed. These rankings reveal the region's significant lack of excellence in higher education, with a few universities and countries concentrating the higher-quality institutions. However, they use a narrow range of criteria that can create a distorted vision of educational success, failing to capture some relevant elements of the teaching and learning process. Their bias towards established universities and research may penalise Latin American universities, partially ignoring factors such as the quality of teaching, campus atmosphere, or universities' "social" mission (*The Economist*, 2011). To address the shortcomings of current metrics of higher education quality, the OECD recently undertook a feasibility study to establish whether an international assessment of what students in higher education know and can do upon graduation is feasible (Assessment of Higher Education Learning Outcomes [AHELO]). The study concluded in 2012 and provided valuable lessons on what worked well and which aspects proved more challenging and would need to be reconsidered to take the initiative forward. At the time of writing this report, the future AHELO is not yet known but this type of direct and internationally comparable evaluation of higher education student performance looks promising for comparing the performance of teaching-focused higher education institutions on a level playing field (OECD, 2013).

One of the key dimensions determining the quality of higher education is related to the teaching profession, which is not always up to the highest standards in the region. The teaching profession in the region shows various limitations and deficiencies. Many teachers lack postgraduate degrees,

have limited pedagogic training, are not well paid and work within poorly designed incentive schemes (Brunner and Ferrada, 2011). And all this takes place in a changing environment: the massification of higher education, the incorporation of new students and the resulting new learning demands, the proliferation of new programmes and fields of knowledge and the growing scrutiny from public authorities to comply with quality levels create new pressures for teachers. Furthermore, the introduction of ICTs entails additional demands for teachers that can erode their levels of performance, and which have often led school authorities to rely on very young and inexperienced teachers (Brunner and Ferrada, 2011).

In a context of expanding HEIs, mechanisms to assure, measure and evaluate their quality have become increasingly relevant. In fact, this is one of the recent areas of concern in public agendas in the region as public authorities seek to guarantee that higher education serves its economic and social functions. Yet while the number of evaluation agencies has grown (in some countries more than others), there is room for improvement. For example, education authorities need to open up accreditation systems to encompass the diversity of existing HEIs, embrace different institutional models, improve evaluators' qualifications and strengthen quality control processes. Further, given the increasing internationalisation of higher education, ensuring the quality and comparability of degrees becomes even more important. Regional co-operation in this matter takes place through the Ibero-American Network for the Accreditation of Quality in Higher Education (RIACES).

To a great degree, universities' rigid governance models explain their low quality and performance levels in international rankings. In many countries, more flexible governance models and favourable regulatory environments have proved to provide propitious conditions for a dynamic and innovative development of universities (Salmi, 2013). By contrast, many experts point to higher education governance models and national policies in Latin America as one of the main reasons for their low quality and presence in rankings (Bernasconi, 2013). Important areas for improvement include allowing the state to take a more prominent role in higher education policy making, given that most universities do not have quality leadership or the appropriate internal platforms to adopt bold reforms; introducing more long-term and strategic decision making in universities to avoid the limitations imposed by the existing endogamy in HEIs, which leads to sometimes biased, partisan and conservative decision making; and introducing reforms to renew the faculty, devote more resources to research, or enhance effective career structures and salaries for professors (Bernasconi, 2013).

The link with the productive system

Higher education has a role to play in fostering economic dynamism, competitiveness and growth. Creating, disseminating and incorporating knowledge into production processes to increase productivity and the capacity to innovate is crucial to fostering competitiveness in the global and knowledge-based economy. Upgrading human capital in an economy favours the integration and participation into higher segments of global value chains. It also supports the expansion of potential growth. Additionally, providing individuals with better and higher-level education increases their chances of participation in the labour market with better-quality and higher-paid jobs.

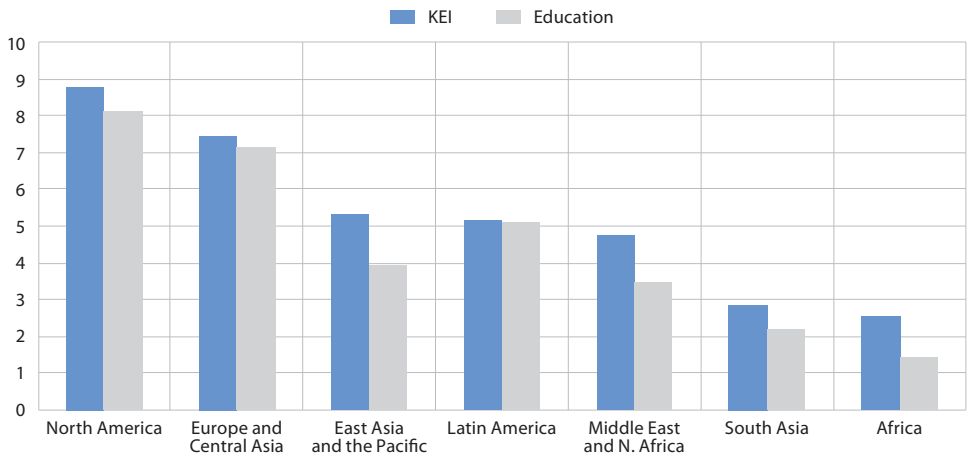
However, a significant mismatch between demands of the productive sectors and supply by the education system means that higher education systems are failing to serve effectively the needs of the economy; around 36% of the region's firms point to the difficulty of hiring adequately trained employees as a major obstacle (OECD/United Nations/ECLAC, 2014). They struggle to find: *i)* soft skills, such as critical thinking, teamwork or problem-solving capacities; and *ii)* technical and technological capacities and the competencies needed for new-economy jobs (IDB, 2012; OECD/ECLAC, 2012). Thus, education systems should enable skilled workers to perform complex tasks and adapt quickly to a changing environment and the evolving needs of the economy. Higher education can play a decisive role in providing these kinds of skills and fostering innovation and the incorporation of technologies into production.

The recent decline in wage premiums for workers with university degrees shows that higher education is less valued, for reasons that go beyond the fact that the higher education system is not supplying the right skills. On the one hand, the low availability of high skills can discourage entrepreneurs from investing in projects requiring highly skilled workers, thus creating a vicious circle wherein the education system prevents the economic structure from upgrading (World Bank, 2012). On the other hand, the region's commodity boom has concentrated the demand for labour in relatively low-skill sectors, thus favouring the unskilled workforce. Meanwhile, the subsequent appreciation in exchange rates may have eroded the competitiveness of some skills-biased sectors with less weight in the economy, thus reducing the demand for skilled workers (Gasparini et al., 2011).

Overall, the higher education system must serve the general objective of fostering competitiveness and inserting the economy in the global knowledge world. The World Bank's Knowledge Economy Index measures the ability

of a country or region to generate, adopt and diffuse knowledge and use it effectively to foster economic development. It shows that Latin America lags well behind the developed world both in an overall index of the level of preparedness for the knowledge economy, as well as in the education component of this index (Figure 1.5). Through its "higher education and training" indicator, the Global Competitiveness Index (World Economic Forum, 2012) provides valuable information on the higher education system's capacity to promote competitiveness. It measures "secondary and tertiary enrolment rates as well as the quality of education as evaluated by the business community" as a main determinant of a country's capacity to compete. It shows that Latin American countries perform very poorly: only Costa Rica (#21), Colombia (#77), Chile (#91), Ecuador (#93) and Bolivia (#96) rank among the top 100 out of 144 countries.

Figure 1.5. **Knowledge Economy Index (KEI) by region, 2012**



Note: The Knowledge Economy Index (KEI) takes into account indicators in four areas: economic incentive and institutional regime; education; innovation; and information and communications technologies. The KEI results from calculating the average of a country's or region's normalised scores in these four areas.

Source: World Bank, Knowledge Assessment Methodology 2012 Database, http://einstitute.worldbank.org/ei/course/using-knowledge-assessment-methodology-kam.

Higher education financing

One of the main challenges for the higher education system is related to its need to find a sustainable funding model that also facilitates its effective contribution to society and the economy. Alongside expanding enrolment, higher education functioning costs have increased. Growing wages for

knowledge-intensive sectors, such as the teaching profession, have led to higher teaching costs, while intense competition has led to higher spending to improve quality and attract students (Brunner, 2013). These combined factors have put higher education systems under financial pressure. A rethinking of methods of obtaining and sharing funding among beneficiaries has been taking place in recent years.

Higher education offers considerable public and private returns and the arguments in favour of cost sharing between the state and students/households are solid. Higher education generates a number of social benefits and public externalities, mainly related to growth, social cohesion, the creation of a knowledge base and the transmission of certain values underpinning institutions and democracy. Public funding therefore continues to be unquestionable. However, the private returns from higher education are also high and given the system's financial constraints, students and graduates could bear some of the costs of the services they receive (Brunner, 2013). This would also allow the allocation of public funds to the areas with social relevance (e.g. through a comprehensive system of student loans or grants, mainly aimed at disadvantaged groups).

E-learning and recent developments in teaching and learning in higher education

ICTs are transforming the way teaching and learning take place in higher education. Since their emergence, they have been increasingly incorporated into education, not only as a gradually larger curricular component, but more importantly as a means to improve teaching and learning practices.

Broadly defined, e-learning denotes "the use of information and communication technology to enhance and/or support learning in tertiary education" (OECD, 2005). A number of different higher education modalities can be included depending on the different degrees of ICT involvement. The European Union's definition 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" (European Commission, 2001) and thus incorporates distance as an important feature of e-learning. In recent times, e-learning has experienced major breakthroughs, already seen by many as an "education revolution" that will change the current understanding of higher education. Many

see the emergence of massive online open courses (MOOCs) as a potential transformative force, allowing students from around the world to access for free or at very low cost courses offered by top universities.

This new approach to education entails some challenges and potential risks that are still difficult to fully envisage. It also offers strong opportunities to expand quality higher education across the globe. E-learning in general, and MOOCs in particular, are here to stay. Alongside these major breakthroughs, a number of interconnected issues are emerging. The future of residential higher education, the role of teachers and classroom experiences with peers, the right balance between online and face-to-face learning, quality assurance and other issues such as certification are still at the heart of an open and vibrant debate. Nevertheless, while many uncertainties remain, HEIs, politicians and public opinion are increasingly aware that these technologies can profoundly transform and democratise higher education globally, improve its outcomes and increase its social and economic impact.

Latin America risks falling behind by failing to adapt to the changing dynamics of higher education. It also has the chance to overcome the challenges and reap the potential benefits these can bring to higher education. E-learning and the emerging higher education patterns can help alleviate the inequalities in access to and outcomes of higher education, its relatively low quality and limited capacity to respond to the needs of the modern economy and the financial pressures brought to bear on the system.

E-learning represents a unique opportunity to attenuate the inequalities in access to higher education and improve access across socio-economic groups. One of the main differentiating factors in access to higher education is income and socio-economic background. In principle, new ICTs facilitate more democratic participation in higher education – as long as a large part of the population has guaranteed access to them – thus reducing the importance of income or the background. New technologies also enable people from rural and isolated areas, as well as disadvantaged and targeted groups, to enrol and participate in higher education. Finally, e-learning introduces more flexibility in teaching and learning practices, thus facilitating participation by different segments of the population (e.g. part-time workers and elderly persons).

E-learning can also offer many potential benefits with regard to quality. First, ICTs are triggering potentially beneficial new learning and teaching practices, with significant room for improvement in pedagogical models and learning methods. Second, programmes from high-quality HEIs can be made available to more people, offering new opportunities to participate and benefit

from the highest standards of teaching and choose a course of study from available courses in the global higher education network.

E-learning can also have a considerable impact on the productive system. First, it trains future workers to use, and engage in problem-solving with, new technologies. Second, it enables the education system to respond to the changing demands of the productive sectors, for example by facilitating workplace or lifelong training. Third, it promotes new learning methods, such as interactive and community learning, which stimulate the development of soft skills that are highly valued by employers and essential to many new-economy jobs.

Finally, new technologies can lower the financial costs of providing higher education. While fixed costs can be high (owing to the need for large technology investments, maintenance and upgrading), marginal costs per student could decrease through reaching a larger audience. However, the financial implications of e-learning for HEIs are still unclear.

The next chapter delves deeper into these issues, focusing on two main areas. First, it analyses the global evolution of e-learning and the main features and potential implications of some of its most recent developments. Second, it frames these issues into the Latin American context and analyses the potential impact in mitigating or exacerbating the main higher education gaps and challenges (i.e. access to and quality of the higher education system, and its link with the productive sectors).

Notes

1. Poverty rates are calculated as a poverty headcount-weighted ratio and presented as a percentage of country population. The poverty line is set at USD 4 at 2005 purchasing power parity.
2. This index uses 13 criteria focusing on 5 main areas: teaching (30%), research (30%), citations (30%), industry income (2.5%) and international outlook (7.5%).

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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).

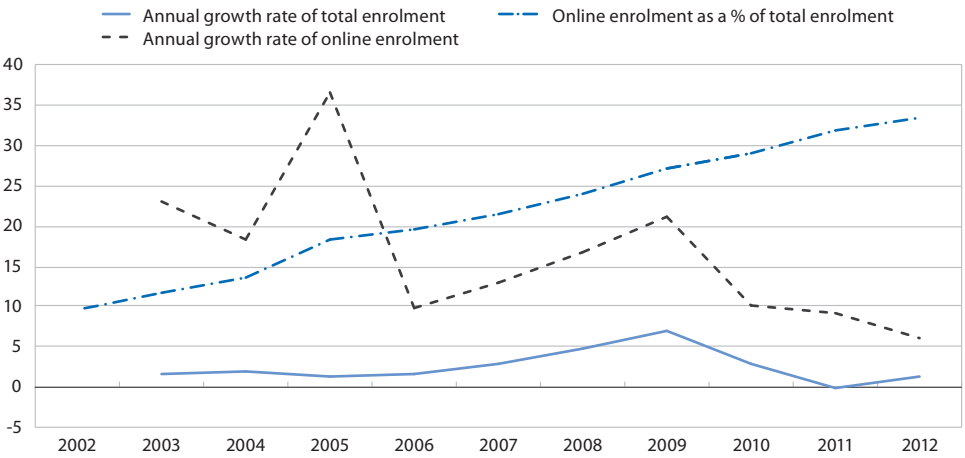
E-learning and its expansion

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).

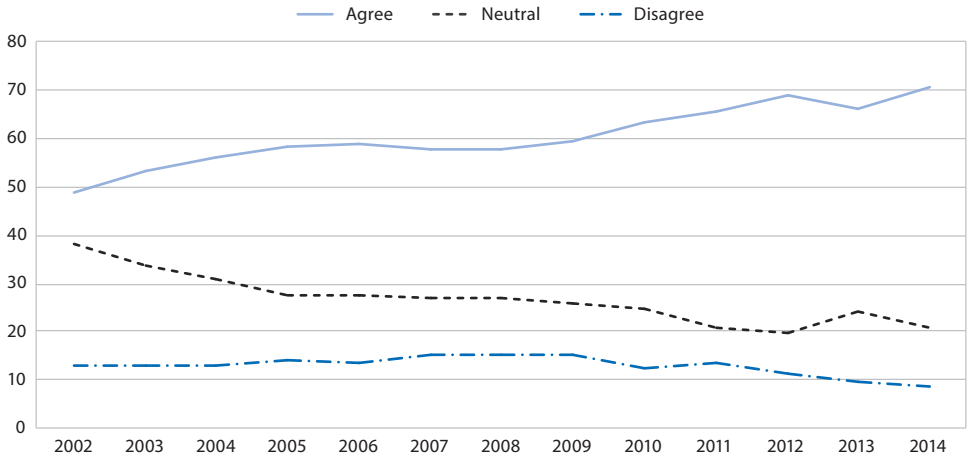
Figure 2.1. **Online enrolment vs. total enrolment in higher education in the United States, 2002-12**



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 report[3] 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

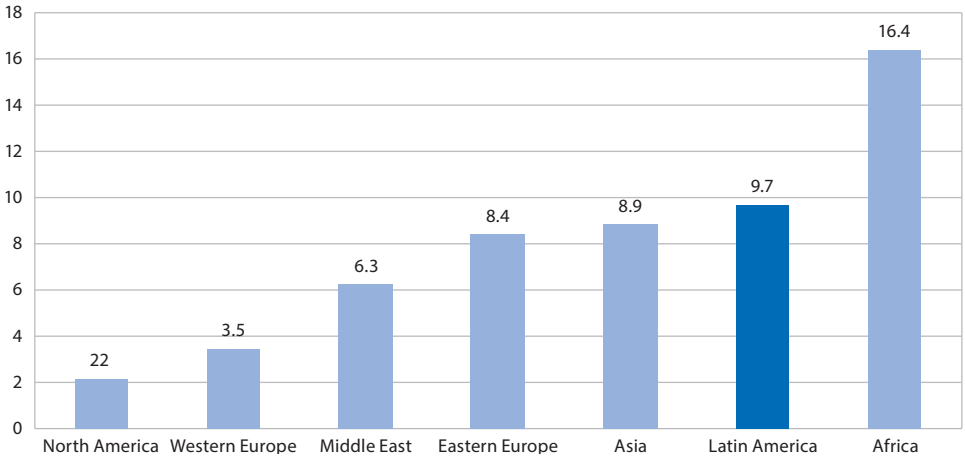
nature of the region's universities. It then focuses on some specific areas of the higher education system that present particularly challenging issues for the region, and where e-learning can bring about some transformative opportunities.

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.

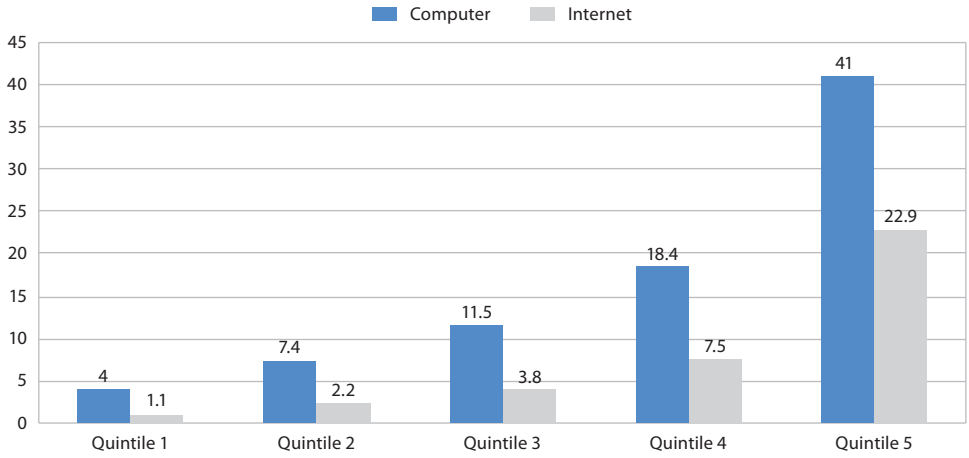
Access to higher education

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***

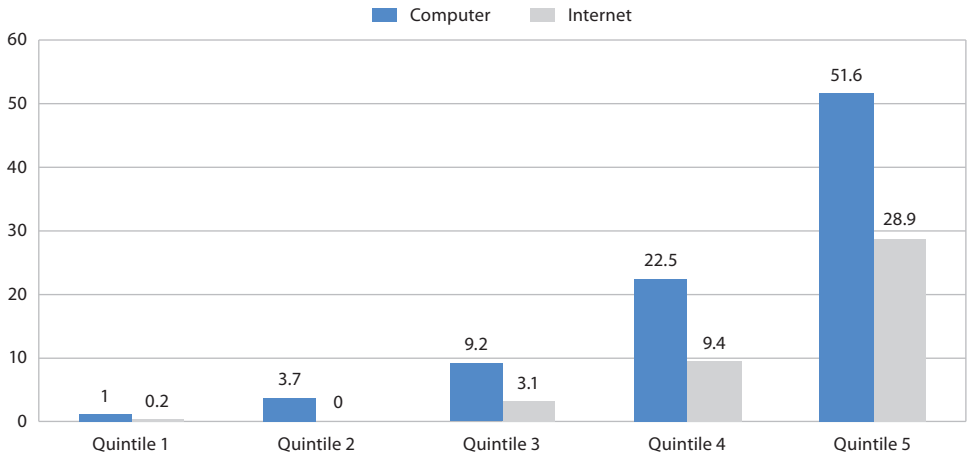


*Calculated as a simple average of seven selected countries: Brazil, Costa Rica, Chile, El Salvador, Honduras, Mexico, Paraguay.

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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Chapter 3

A survey of Latin American universities and expert insights on e-learning in higher education

The results from a survey of 34 Latin American universities and a series of interviews with experts in higher education shed light on recent trends in e-learning in the region. While e-learning has increased and is expected to grow, the face-to-face model is still predominant and different challenges remain. Access has expanded for certain groups, but the digital gap is still large. Efforts need to be made in areas such as accreditation, evaluation and teachers' training to improve and maintain quality in emerging modalities of e-learning. The focus of e-learning programmes is still not well linked with labour market demands and the costs of setting up, developing and maintaining e-learning platforms are high. Policies are needed to tap the potential of e-learning. More flexible and enabling regulations, larger public involvement and public-private partnerships for financing, and better teacher training are essential according to the results from the interviews.

Latin American higher education institutions (HEIs) have undergone important transformations in the last decades, but still their main features have remained relatively stable and the functioning model has not changed significantly. However, the gradual incorporation of information and communication technologies (ICTs) into higher education, combined with the emergence of new technologies and the subsequent appearance of new learning and teaching methodologies, has generated a faster pace of change within higher education systems and has laid the foundations for a potentially more sweeping transformation of the higher education landscape.

Given this context, it is important for the region to understand the transformations taking place globally in higher education in order to recognise the challenges and opportunities they offer. Chapter 1 of this report highlighted the main challenges facing higher education in the region. Chapter 2 described the main global trends regarding the incorporation of ICTs into higher education to understand the opportunities and risks these developments represent for the region.

With this in mind, Chapter 3 intends to shed some light on these issues in Latin America. It attempts to draw a general picture of how HEIs in the region are incorporating these technologies, to what extent they are adopting e-learning programmes, and their impact on teaching and learning. It draws on two main sources of information: a comprehensive survey of a number of Latin American universities currently implementing e-learning programmes and a series of interviews of Latin American higher education experts, who elucidate the role of ICTs in the sector.

Sources and data

Survey

The survey was explicitly designed for this report and conducted by the OECD Development Centre. A total of 34[1] universities representing 13 countries throughout the region responded to it, including 20 public universities and 14 private universities. The requirement for the choice of universities was the existence of e-learning programmes within the institution. Since only universities were considered within the scope of HEIs, the terms "universities" and "HEIs" are used interchangeably throughout the chapter.

Our analysis and interpretation of the survey's results bore in mind two limitations of the sample. On the one hand, given the number and diversity of HEIs in the region today, the explanatory power of the sample of 34 universities is limited. On the other hand, the regional higher education landscape is characterised by its deep fragmentation and strong divergences among institutions, as well as by the coexistence of different realities both within and among countries. This is why the results are not suitable for drawing a comprehensive view of the different dynamics within the region.

However, there are four main reasons why the survey results can be regarded as valuable and informative evidence to understand the main trends and issues relative to the evolution of e-learning programmes and the incorporation of ICTs into Latin American higher education. First, the sample covers 13 Latin American countries that include a large majority of the region's population, with some major economies (mainly Argentina, Brazil, Colombia and Mexico) relatively better represented. Second, according to the figures provided by the participating universities the number of students covered by the survey adds up to approximately one million – a significant portion of the total number (slightly above 19 million in 2008) of higher education students in the region (Brunner & Ferrada, 2011). Third, most of these institutions are ranked among the top universities in their respective countries. In fact, 6 universities rank among the top 15 in the region, while 14 universities are among the top 5 in their respective countries, and 19 are among the top 10 in their countries (QS University Rankings, 2013). Finally, 15 universities are part of AIESAD, the Ibero-American association for distance higher education, therefore including information of some of the universities that are more in touch with the changes experimented in the field of virtual education. Moreover, out of the 15 universities surveyed that are not ranked among the top 10 in their country, 10 belong to AIESAD, showing that the sample mostly includes either top universities or universities with a particular focus on virtual education. It is therefore reasonable to assume that the survey results offer a view of what either top-ranked universities or universities focused on e-learning are doing and experiencing with regard to ICT incorporation and virtual education.

Interviews

To complement this information and help put into context some of the main findings, six prominent experts[2] in Latin American higher education were interviewed. The questions revolved around: *i)* the challenges of higher education in the region; *ii)* the pace and degree of ICT incorporation into higher

education, the growing presence of e-learning programmes and the extent to which they represent an opportunity or a risk in relation to the identified challenges; *iii)* whether we are heading toward a new higher education paradigm, with a much stronger presence of ICTs in a blended model featuring substantially different roles for teachers and students, and its possible forms, with special attention to the emergence of massive open online courses (MOOCs); and *iv)* the role of public policy – if there is one – in incorporating ICTs in higher education and expanding e-learning, as well as optimising the impact of ICTs so that they stand out as a valuable tool for facing the challenges of higher education in the region.

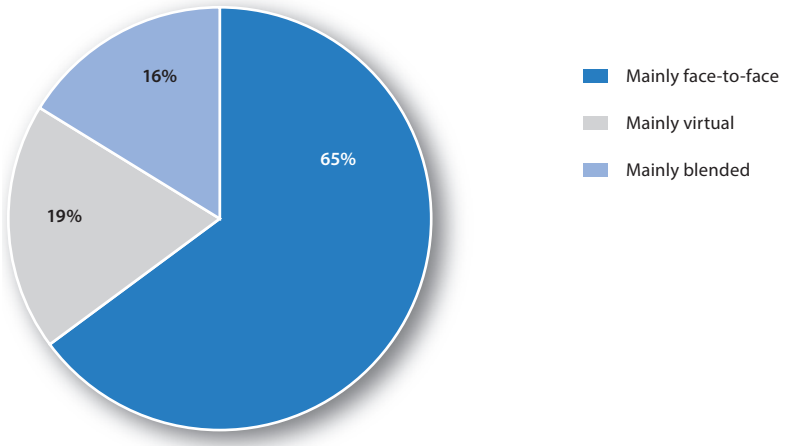
The remainder of the chapter describes the main findings from these two sources of information and is divided into two main sections. The first section analyses the main results of the survey. The second summarises the key issues emerging from the interviews.

Survey results

General trends in e-learning in Latin America: Where do we stand?

Face-to-face education is highly prevalent, although e-learning is expected to expand in coming years as most universities either have an e-learning strategy in place or are developing one. The survey results show that the education model is predominantly face-to-face in 65% of the universities, while 16% are mainly based on a hybrid model and 19% are essentially centred on e-learning (Figure 3.1). Among the members of AIESAD,[3] 50% stated they implemented face-to-face as the predominant teaching and learning model and 22% declared they were mainly based on virtual education. Only 16% of non-members of AIESAD, however, stated their model was mostly centred on e-learning and 79% declared they were mainly based on face-to-face education. This picture will very likely change in the near term as practically all universities either have an e-learning strategy in place (74%) or are developing one (21%). Additionally, the open education resources (OER) movement appears to have spread throughout the region, with 70% of universities declaring they have a policy to open up access to educational resources to the public. It is also relevant that around 83% of universities have a virtual learning management system (Moodle, Blackboard, WebCT, etc.) in place, while the remaining 17% are considering adopting one.

Figure 3.1. **Predominance of different models of higher education in Latin America, % of universities**

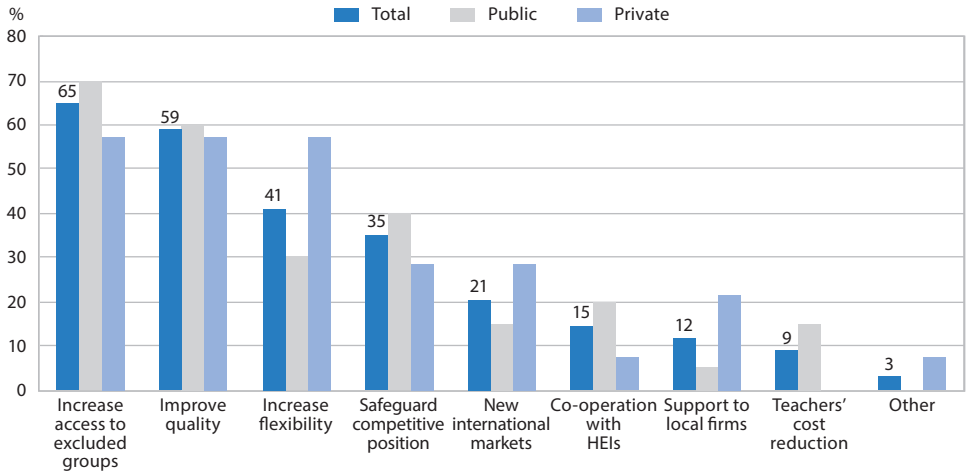


Source: Author's own elaboration based on survey results.

The rationale behind the adoption of e-learning programmes by HEIs is diverse and mainly related to increasing access to excluded groups, improving the quality of education and favouring student mobility and flexibility. Respondents' main reasons for adopting e-learning programmes included expanding higher education access to excluded groups (65% of the universities), improving quality (59%), increasing flexibility for students (41%) and safeguarding their position against competitors (35%). Both AIESAD members and non-members indicate these priorities in the same order – which differs slightly, however, when comparing public and private universities. While both attribute the same importance to the two main reasons (expanding access and improving quality) for adopting e-learning programmes, private universities are more interested in increasing flexibility for students (57% of private universities vs. 30% of public universities), opening up to new international markets (29% vs. 15%) and supporting local firms and development (21% vs. 5%). Public universities, for their part, are more intent on co-operating with other HEIs (20% of public universities vs. 7% of private universities) and reducing teaching costs (15% vs. 0%) (Figure 3.2).

The demand for e-learning in the region has expanded, with an associated increase in the number of programmes and students for reasons related both to structural factors and to the advantages offered by new technologies in education. A full 91% of the universities state that the demand

Figure 3.2. **Main reasons behind the adoption of e-learning programmes**

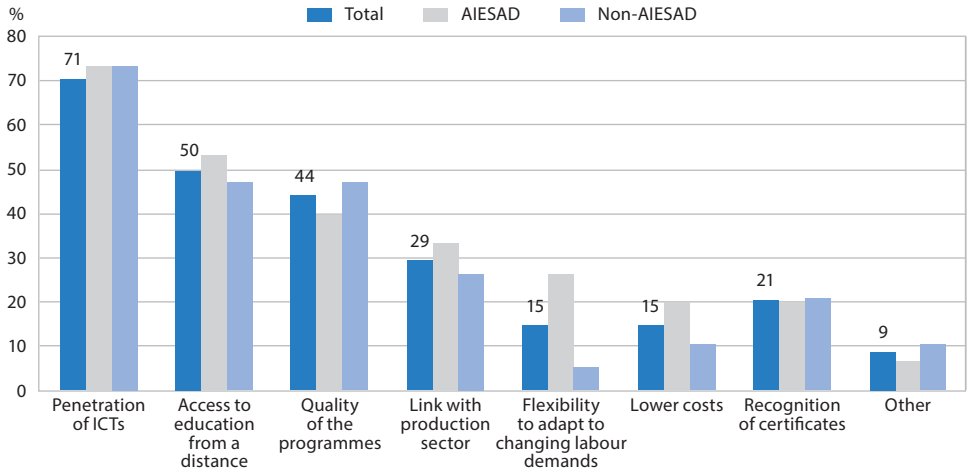


Source: Author's own elaboration based on survey results.

for e-learning programmes has risen considerably in the last five years. This holds overwhelmingly true both across public and private universities and across AIESAD and non-AIESAD members. The reasons behind this phenomenon are diverse: 71% of universities see the increasing penetration of ICTs in their countries as one of the main drivers, while 50% point to the possibility for new students to access distance education. These two could be understood as more structural forces that explain the expansion based on the availability of new, previously absent (or very weakly present) technologies and on the associated development of distance education tools. Other drivers of e-learning have more to do with the specific advantages offered by ICTs in education. In this sense, AIESAD members highlight the pertinence of e-learning programmes and their close link to the needs of the productive sectors, the flexibility they offer to adapt to the changing demands of the labour market and the lower costs of distance vs. face-to-face education as important drivers of the demand expansion. Non-AIESAD members find relatively more relevant the quality of e-learning progammes and the increasing recognition of these as part of formal education (Figure 3.3).

E-learning programmes are present in similar proportion at the undergraduate and postgraduate levels and are focused in fields such as education, business administration and computer science. The responses to the survey show that e-learning programmes are distributed evenly

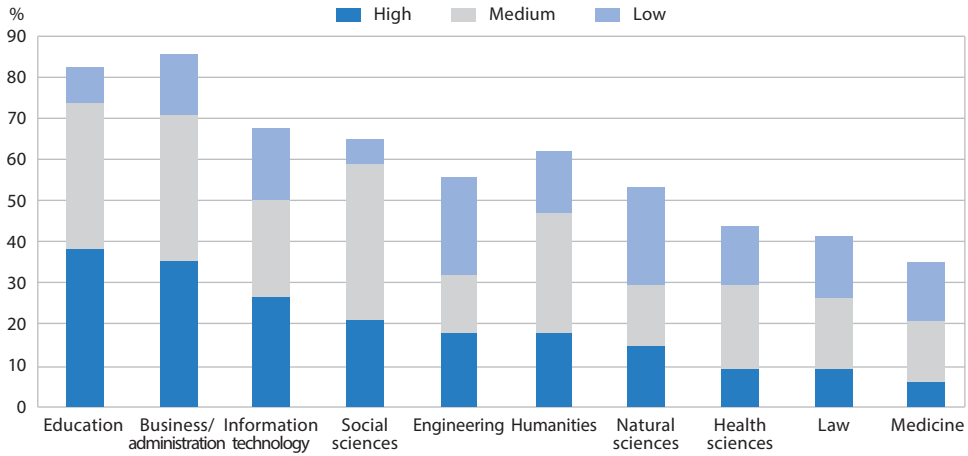
Figure 3.3. **Reasons behind the increase in the demand for e-learning**



Source: Author's own elaboration based on survey results.

across education levels: 47% of the universities concentrate their e-learning programmes at the undergraduate level and the remaining 53% at the postgraduate level (mainly in master's and other specialised programmes) and, to a very low extent, PhD programmes. The distribution of e-learning programmes in the participating universities varies substantially across fields, with significant presence in education (38% of universities claim to have a high concentration of e-learning in this area), business administration (35%) and computer science (26%) (Figure 3.4). Fields such as humanities, natural and health sciences, law and medicine are much less represented, probably reflecting a combination of two phenomena: some disciplines are part of a longstanding university tradition – and thus more averse to innovating and evolving towards new teaching and learning models – and some have a pedagogic model based on experimental techniques performed in the classroom, lab or practice room. When comparing these with fields of education where face-to-face programmes are concentrated in the universities of the sample, fields such as humanities or engineering are the predominant ones. This could suggest a potential fragmentation between disciplines where ICTs are being incorporated in a more meaningful manner and others were either reluctant to change or the specific nature of the area of education is limiting the use of e-learning models. It could also point to a gradual shift away from the traditional focus of higher education in the region.

Figure 3.4. **Degree of e-learning adoption by education field/knowledge**



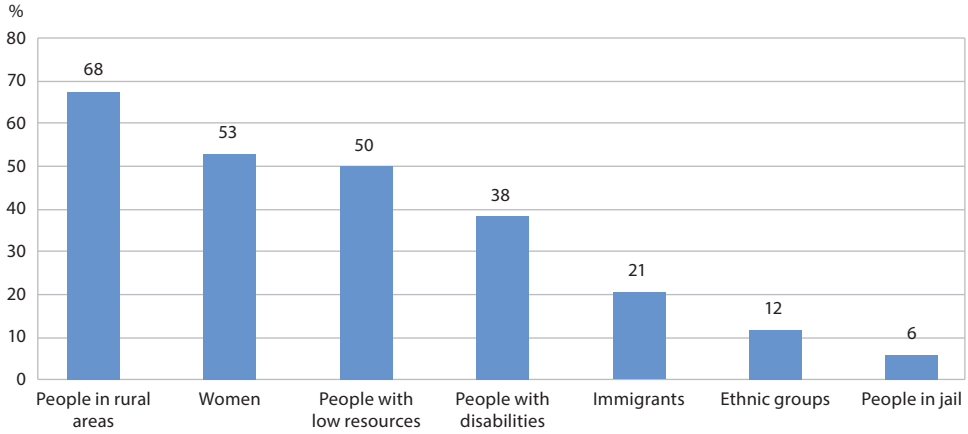
Source: Author's own elaboration based on survey results.

Trends in access

The adoption of e-learning programmes has had a beneficial impact on access to higher education of traditionally excluded groups. According to the survey, 88% of the universities declare they have succeeded in increasing access by traditionally excluded social groups thanks in part to the impact of e-learning. More precisely, 68% of universities mention people in rural areas as one of the main groups accessing their e-learning programmes; 53% mention women, 50% people with low resources, and 38% people with disabilities (Figure 3.5). Compared with private universities, public universities report enhanced access by women, as well as people with low resources, with disabilities or in jail.

The existence of a digital gap in the region is one of the main challenges associated with e-learning, as individuals lacking access to ICTs can be excluded from the potential benefits and opportunities of virtual education. E-learning is thought to present advantages in terms of a more equal access to higher education across socio-economic groups. However, 41% of the universities state that the inherent risk of e-learning is the region's digital gap, whereby low-income and disadvantaged groups have lower access to ICTs. This, in turn, can perpetuate inequalities and exclude these groups from the potential benefits of virtual education. Another 28% of universities are uncertain and 31% disagree that e-learning has this effect.

Figure 3.5. **Access to e-learning by traditionally excluded social groups**



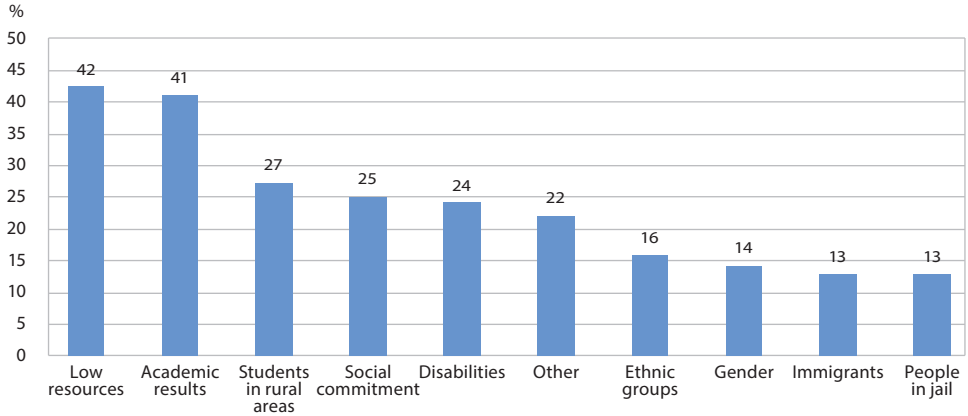
Source: Author's own elaboration based on survey results.

The potentially lower costs to students of virtual education can be a powerful mechanism to foster more equal access across socio-economic groups, although whether e-learning fees are consistently lower than face-to-face programme fees remains unclear. Although e-learning programmes are usually said to have a lower marginal cost – and thus lower fees – per student, 65% of the universities polled declare they do not charge lower fees for e-learning programmes and only 35% claim to charge lower fees for e-learning than face-to-face programmes. Universities do, however, have in place various mechanisms to facilitate access to e-learning programmes for the less favoured or traditionally excluded: 56% of HEIs offer scholarships. Additionally, 47% claim the cost reduction associated with a much less required student mobility is in itself a mechanism that favours access. When granting scholarships or soft credits, the most relevant criteria are low socio-economic status, student results and geographical location (Figure 3.6).

Quality trends

Most e-learning programmes are not accredited by their respective national authorities and thus lack an important mechanism for guaranteeing good quality. Only around one-third of universities claim all their programmes are accredited by national authorities, 19% state that only some of their programmes are accredited and the remaining 50% state their

Figure 3.6. **Most relevant criteria for granting scholarships and giving soft credits**



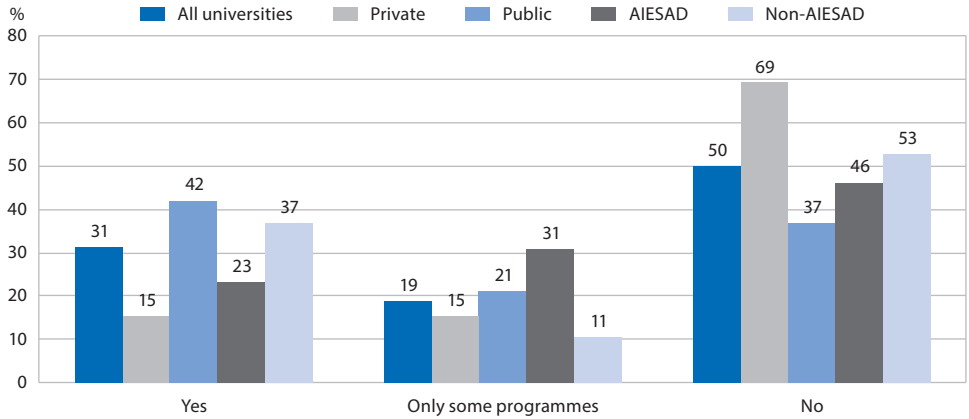
Source: Author's own elaboration based on survey results.

programmes are not accredited. Important divergences exist across public and private universities, as well as across AIESAD and non-AIESAD members. While 42% of public universities claim most of their e-learning programmes are accredited, only 15% of private universities do. Similarly, only 23% of AIESAD members have accredited e-learning programmes, compared with 37% for non-AIESAD members (Figure 3.7).

A significant proportion of universities measure the impact of e-learning programmes on teaching and learning. In particular, 65% of universities declare they bi-annually (36% of universities) or annually (27%) measure the impact of e-learning programmes on teaching and learning. The main mechanism for this evaluation appears to be the implementation of periodical surveys among students enrolled in e-learning programmes, to test their satisfaction and assessment of the courses, level of teachers, educational resources, etc. Another 21% of universities do not evaluate their e-learning programmes regularly.

The quality of e-learning programmes is also adversely affected by inadequate teacher skills and training, inferior payment schemes, the scarcity of student training programmes and insufficient availability of ICTs. One of the main deficiencies in terms of quality relates to the fact that teachers in e-learning programmes lack skills and training in using ICTs and developing digital content. While 65% of universities believe their teachers have the adequate training to develop interactive content, at least 26% believe they do not

Figure 3.7. **Degree of accreditation of e-learning programmes by national authorities**



Source: Author's own elaboration based on survey results.

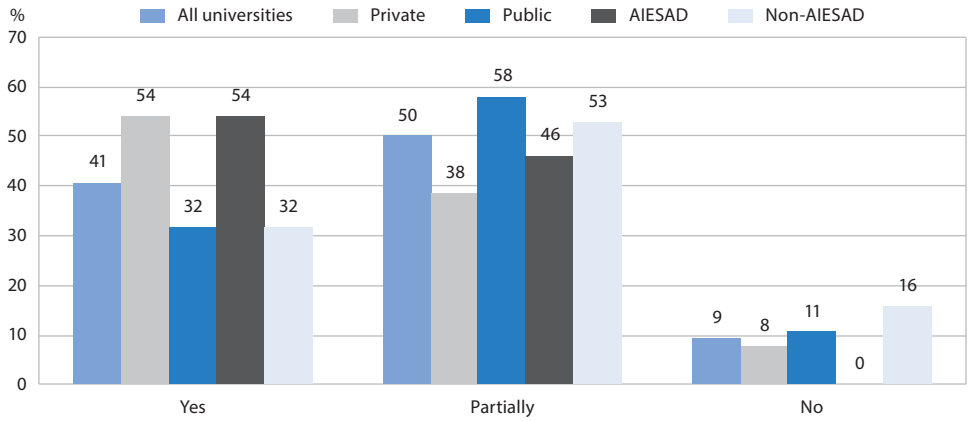
have the required skills and 21% state they are insufficiently skilled in digital and interactive contents and formats. However, more than 90% of universities claim to have in place training programmes for teachers. E-learning teacher salaries are also critically important to the quality of the programmes: around 60% of universities believe the different salary schemes for e-learning and face-to-face teachers can affect the quality of e-learning. In fact, 32% – and a full 50% of private universities – claim to have different payment schemes for e-learning teachers. The availability of ICTs does not appear as a big barrier: only 13% of universities state their ICTs are insufficient to provide effective e-learning teaching and learning. Finally, 72% of universities provide training for students about to enter e-learning programmes. However, only 56% offer training to adapt and update their skills throughout the course, while 34% believe it is relevant and it should be adopted.

Trends in the link between higher education and the labour market

E-learning education is only partially seen as a mechanism for rapid reaction to changes in the labour market's workforce demands. E-learning is generally perceived as a teaching and learning method that easily adapts students' education and skills to labour market needs. Many see it as a tool to adapt more quickly to the increasingly shifting demand in skills, both during the usual higher education period and through lifelong learning opportunities. However, results from the survey show that not all universities in the region

believe this: 41% see e-learning as a mechanism to respond to these changes, 50% only see it partially and 9% do not perceive it as such. A comparison of public and private universities and AIESAD members and non-members shows that both private universities (54% vs. 32% of public universities) and AIESAD universities (54% vs. 32% non-AIESAD members) believe their e-learning offer is a efficient way to respond to changing labour market needs (see Figure 3.8).

Figure 3.8. **Perception of e-learning programmes as a way to react to shifts in workforce demands**



Source: Author's own elaboration based on survey results

E-learning programmes in Latin America are not focused on fields that meet labour demands and universities do not make strong use of available information on workforce demand trends. Only 26% of universities believe their e-learning academic offer is mainly focused on areas of strong labour demand, 53% believe this is partly true and the remaining 21% that it is not true for their institutions. AIESAD universities seem much more strongly aligned with the demands of the productive sectors, with 40% (compared with just 16% of non-AIESAD members) claiming their e-learning programmes centre on areas of high demand. The same applies to private universities, with 38% (compared with 19% of public universities) finding a close correspondence between their e-learning programmes and labour demand. In this context, many countries have established mechanisms to better understand workforce trends and shifts, which could help universities to better adapt their academic focus to labour market dynamics. However, only 38% of universities claim to use this kind of information when defining the focus of their e-learning offer,

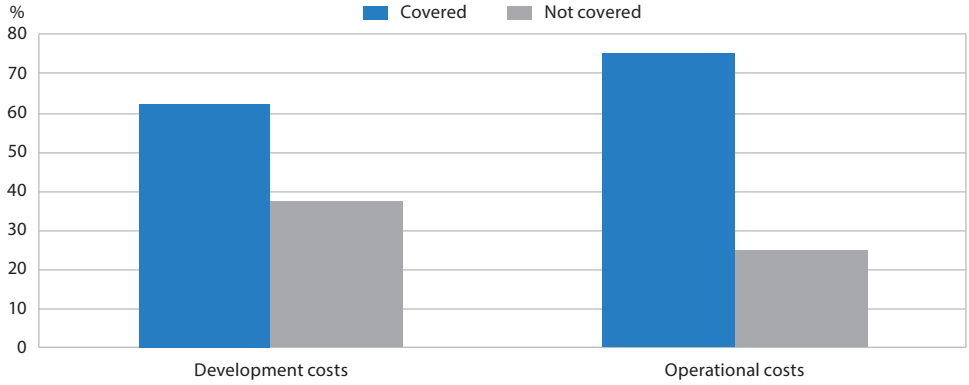
22% do this partially and the remaining 41% do not do it at all. Once again, AIESAD universities are more inclined to do so, and in this case it is the public universities that use this information more than their private counterparts.

The transition from e-learning programmes to the labour market is not sufficiently promoted through agreements or connections between universities and the private sector. Around 38% of universities state they provide specific arrangements for students enrolled in e-learning programmes to undertake a traineeship or apprenticeship at firms in their country, against 63% who do not. Almost 50% of AIESAD universities have developed such agreements or programmes, compared with 32% of non-AIESAD members.

Trends in the financing model

The adoption of e-learning programmes entails substantial costs, which many universities are unable to cover. Development costs include setting up the virtual platform and developing the online material, while operational costs cover the operation and maintenance of the system. Around 38% of the universities polled are unable to cover development costs, which act as an important barrier to entry into virtual education delivery. Additionally, around 25% of universities do not cover operating costs (Figure 3.9). The universities that are unable to cover the costs of e-learning programmes rely on public funding as their main sources of financing.

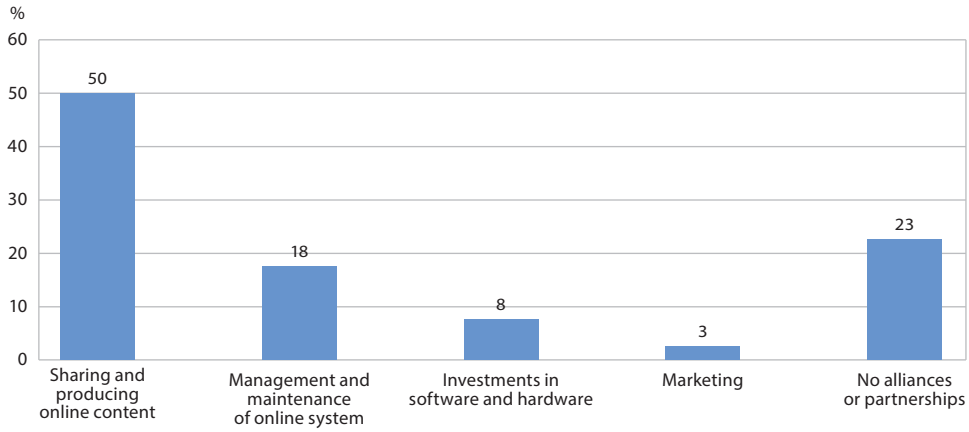
Figure 3.9. **Percentage of universities covering and not covering development and operational costs**



Source: Author's own elaboration based on survey results.

Many universities participate in alliances and/or agreements with other HEIs, which can be a source of cost reduction and efficiency gains. These alliances can represent a very efficient strategy to strengthen the financial sustainability of e-learning programmes by sharing fixed costs, as well as profit from economies of scale and potential synergies and spillovers. Only 23% of universities state they have no established alliances with other universities. The remaining 77% have achieved some kind of institutional agreement with other HEIs mainly focused (for 50% of universities) on producing and sharing online content. Additionally, 18% of universities have established partnerships to manage and maintain the online system, 8% to invest in software and hardware and 3% for marketing purposes (Figure 3.10).

Figure 3.10. **Main objectives of university partnerships and alliances around their e-learning offer**



Source: Author's own elaboration based on survey results.

One of the main hindrances to universities adopting e-learning programmes is scale: a low number of students enrolled in the system decreases its financial sustainability. However, student payment for different services can constitute an important source of financing. Around one-third of universities claim they face problems of scale due to the low number of students enrolled in e-learning programmes, thus endangering their sustainability. The main source of financing is student payment for certain services, such as diplomas granted for e-learning programmes (43%) and access to static content, participation and spaces for interaction (29%).

Conclusions from the interviews

Six prestigious experts in Latin American higher education were interviewed (see Annex 3.A1) to complement the results of the surveys. The questions were organised around the following areas: the degree of incorporation of ICTs in higher education and the magnitude of e-learning's expansion in Latin America; the impact of ICTs on the education model and the extent to which e-learning is driving a new teaching and learning paradigm, with particular emphasis on some of the most recent developments, such as MOOCs; the potential impact of ICTs and e-learning on overcoming some of the main higher education challenges in the region; and the policies that can maximise the impact of ICTs and tap the potential benefits of e-learning.

The following describes the main messages and key remarks that emerged during the conversations, highlighting the areas showing some consensus, and presents some general conclusions. The following ideas reflect the opinions of the experts, rather than any particular stance of the OECD Development Centre.

ICT incorporation in higher education is still low

ICTs have been increasingly incorporated in universities, although mainly to improve management systems rather than as part of the learning and teaching process. HEIs in the region have gradually incorporated ICTs to improve their management systems. While this has permitted significant progress in learning management, it has not necessarily translated into better services for students, as the motivation behind adopting these management systems has been mostly to achieve efficiency gains and cost reductions. Indeed, the incorporation of ICTs in the classroom and as part of the teaching and learning process appears much less significant.

There is considerable fragmentation among universities with respect to the degree of ICT incorporation. A number of top-ranked, leading and sometimes exclusive universities are incorporating ICTs more widely. However, more modest, lower-quality universities, usually with higher massification and an inflow of students from poorer and less educated socio-economic backgrounds, have not incorporated ICTs at the same pace – if at all – thus widening the gap among institutions. There are also universities of recent creation which in general have a tendency for a stronger incorporation of ICTs, although they are usually driven more by a desire to reduce costs and increase

efficiency to underpin their financial sustainability than by the motivation to improve the learning and teaching process. Additionally, considerable divergences in ICT incorporation exist among fields of knowledge, with some sciences adopting them more strongly and the humanities lagging well behind.

Despite the gradual incorporation of ICTs and the expansion of e-learning, the higher education paradigm has not experienced any deep transformation

While e-learning has expanded and ICTs are much more present today in higher education, this has not stimulated a transformation of the education paradigm. The incorporation of ICTs into higher education has mainly consisted in an increase of ICT endowments and facilities, e.g. more computer rooms, dedicated software, or a broader use of Internet connections. While this has certainly made the current model more efficient, whether it has had any effect on changing the educational paradigm – which would entail deeper transformations related to the pedagogical model and to a new concept of teaching and learning – is questionable.

HEIs are somewhat reluctant to adopt a new model of teaching and learning. The incorporation of ICTs has changed some habits and behaviours, due to the fact that gradually incorporated technologies eventually determine the educational model. This is not the ideal situation. On the contrary, the educational model should determine how ICTs are used and incorporated in order to improve teaching and learning. Thus the region faces a pedagogical challenge, as the traditional model still prevails and ICTs are not being used to reach a new understanding of how higher education takes place. In fact, the traditional model does provide good service in top universities, where the quality of teaching is high, students come from an educated background and the networks are wide and offer broad opportunities. In most universities, however, the traditional model does not provide quality service and ICTs could be used to improve the educational paradigm significantly.

Recent methods of higher education delivery, mainly the MOOCs, have barely penetrated the region. Despite the expansion of MOOCs – principally in US universities – the region has not devoted much attention to them and education authorities, policy makers and university leaders do not appear particularly interested in, or concerned about, them. Most experts see the model as interesting because it democratises and globalises some aspects of higher education. However, they see obstacles to an easy entry of MOOCs in the region, owing to the language barriers, rigid regulations and a weak

culture of university partnerships or alliances. Yet the authorities should not underestimate the chances that top world universities could increase their presence in Latin America by hiring teachers on site and delivering courses on line. In any event, some challenges still lie ahead for MOOCs that are particularly relevant to the region. In particular, the individuals who could benefit most from them (owing to their geographical remoteness, low economic resources or inability to undertake full-time study) are the least prepared to take advantage from them, given that they usually come from a less educated socio-economic background, have lower skills in technology use, etc. Since the risk of failure or dropout is consequently high, making progress in areas such as student monitoring or mentoring is vital. Thus, MOOCs and similar educational alternatives must take into account the socio-economic background of potential students. Other unresolved issues pertain to the means of conducting evaluations and granting credit.

E-learning has great potential to help overcome the main challenges of higher education

E-learning is a great opportunity to increase access to higher education, although it also risks widening existing gaps or exacerbating difficulties for students from less educated backgrounds. While e-learning can foster access to higher education – especially for people living in rural areas, people with low resources, or people who need more flexible ways to study because of job or family obligations – it also entails certain risks. First, the existence of a digital gap, whereby the less favoured have relatively limited access to ICTs, can further isolate them from the potential opportunities of virtual higher education. Second, people from poorer backgrounds generally have lower levels of general knowledge and technological skills. Therefore, the people who stand to benefit more from the wider opportunities of e-learning could be precisely those who experience difficulty in effectively participating in that method of delivery, since it requires a degree of general skills.

E-learning can have a positive impact on the quality of higher education, insofar as it is accompanied by a transformation of the higher education paradigm. Indeed, its potential impact is strongly related to the extent to which teaching and learning models are transformed to seize the opportunities offered by ICTs. The traditional model is strongly rooted in the region (and defended by some people), sometimes hiding deficiencies that lower the quality of the educational system in general and many institutions in particular. A serious consideration of the roles of teachers, students and institutions themselves is required so that ICTs may be oriented to improve quality. Some experiences

of blended and virtual education models show their potential to transform teaching and learning practices and improve the quality of education.

E-learning can foster a stronger link between the higher education system and the productive sectors. In a rapidly evolving economy driven by rapid technological change, the ability to adapt to the shifting workforce demand is critical to enhance employability of individuals as well as to foster productivity and an optimal match between skill demand and supply. In this context, lifelong learning becomes increasingly relevant as a way to incorporate new skills and acquire training throughout the career path. E-learning is a great tool to this effect, as it facilitates a distance learning process that can accommodate the duties and responsibilities of work and family life. It is also very effective in fostering workplace learning. Understanding this potential is particularly relevant in the Latin American region, which has shown some resistance to factoring the variable of the productive sectors into higher education planning.

Policies can have strong impact on unleashing the potential of e-learning and ICTs

Since the public policy agenda has not paid much attention to incorporating ICTs into higher education, there is potential for improvement. This lack of interest on the part of the authorities is partly related to the autonomous nature of universities – suggesting that HEIs themselves have driven the change towards more ICT-based teaching and learning – and to the pre-eminence given to primary and secondary education in the region. This context leaves ample room for the authorities and university leaders to implement new policies.

First, the regulatory frameworks remain too restrictive and rigid to favour the adoption of ICTs and a transformation of the higher education paradigm. Regulatory frameworks in the region do not favour student mobility across fields of knowledge or flexible curricula. In addition, mutual recognition of credits awarded is no easy task across institutions and countries. Thus, the potentially beneficial flexibility afforded by e-learning programmes is very limited. Additionally, regulations related to the telecommunications sector and ICTs need to be improved if they are to foster access to ICT in higher education scenarios.

Second, technological infrastructure is costly, so it is vital to find ways to finance it and foster partnerships at different levels. Many HEIs may see this expense as a major barrier to e-learning and ICT adoption. Operational costs are also high. This opens up a space for the public sector to play a

role by assuming a portion of these investments, or fostering public-private partnerships to favour the financing of this model. Moreover, since the financial resources universities devote to ICT incorporation often aim to achieve efficiency gains, instead of an investment to promote a transformation in the education model, the public sector could support investments that aim to change the education model itself.

Finally, a key area where the potential of e-learning and ICTs can be unleashed is teacher training. One of the main barriers to e-learning adoption is the relatively limited training of teachers both in the use of ICTs and in new pedagogic models. This remains key to reaping the benefits of e-learning and fostering a potential transformation of the region's higher education paradigm.

Notes

1. See Annex 3.A1 for a detailed list of universities, with their respective countries of origin. Consórcio CEDERJ, from Brazil, is actually a consortium of seven public higher education institutions, but it is considered in the survey as a single institution, as they responded as such.
2. See Annex 3.A1 for detailed information on the experts.
3. All AIESAD members included in the survey are from Latin America (AIESAD also has members in Portugal and Spain). Therefore, any mention of AIESAD in the document refers only to AIESAD in Latin America (AIESAD LAC in the figures).

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Annex 3.A1

Participating universities and experts interviewed

List of universities that participated in the survey, by country of origin

Argentina

- Universidad de Buenos Aires (UBA S.XXI)
- Universidad de Mendoza
- Universidad Nacional de Córdoba
- Universidad Nacional de Quilmes

Brazil

- Consórcio CEDERJ
- Universidade Estadual Paulista UNESP
- Universidade Federal de Minas Gerais
- Universidade Rio Grande do Sul

Chile

- Universidad Andrés Bello
- Universidad Católica de Valparaiso

Colombia

- Universidad EAFIT
- Universidad Nacional Abierta y a Distancia
- Universidad Santo Tomás
- Universidad Tecnológica de Pereira

Costa Rica

- Universidad de Costa Rica
- Universidad Técnica Nacional de Costa Rica

Ecuador

- Escuela Politécnica del Ejército
- Universidad Politécnica Salesiana
- Universidad Técnica Particular de Loja

Mexico

- Centro Interamericano de Estudios de Seguridad Social
- Tecnológico de Monterrey
- Universidad Autónoma de Nuevo León
- Universidad de Guadalajara (Sistema Virtual de la UdG)
- Universidad Nacional Autónoma de México

Panama

- Universidad de Panamá
- Universidad Tecnológica de Panamá

Paraguay

- Universidad de Villarrica

Peru

- Pontificia Universidad Católica del Perú
- Universidad Peruana Cayetano Heredia

Dominican Republic

- Instituto Tecnológico de Santo Domingo – INTEC
- Universidad Abierta para Adultos – UAPA

Uruguay

- Universidad de la Empresa
- Universidad de la República

Venezuela

- Universidad Rafael Belloso Chacín

Experts interviewed

- José Joaquín Brunner, director of the UNESCO Chair in Comparative Higher Education Policies and Systems, Universidad Diego Portales (Chile).
- Claudio Rama, former director of the UNESCO International Institute for Higher Education in Latin America and the Caribbean. Dean of the Business School in Universidad de la Empresa, Uruguay. Director of the Observatory for Virtual Education in Latin America.
- Luis Enrique Orozco, professor and former Vice-Rector of the University of Los Andes, Colombia. Director of the UNESCO Chair for Higher Education in Latin America. Former co-ordinator of the National Council for Accreditation in Colombia and adviser to various ministers of education.
- Juan Carlos Tedesco, former Minister of Education of Argentina 2000-07 and director of the International Bureau of Education in Geneva (1992-97).

- Jamil Salmi, independent consultant, former Co-ordinator for Higher Education at the World Bank, main author of the World Bank Tertiary Education Strategy, "Constructing Knowledge Societies: New Challenges for Tertiary Education".
- Frida Díaz, Universidad Nacional Autónoma de México, former member of the Advisory Council for the Co-ordination of Open and Distance Education (2004-06) and of the Team of Experts on Higher Education and ICTs of the Organization of the Ibero-American States.

Annex A

Country snapshots of distance education and e-learning in Latin America

Although the situation of e-learning in Latin America varies greatly across countries, all of them have seen an increase in the availability of e-learning in higher education.[1] One of the few aspects that are common to all the countries' experiences is that new policies and programmes involving e-learning have been strongly influenced by the objective of increasing access to higher education among the population. The concept of e-learning in Latin America is therefore intrinsically linked to distance education. This is hardly surprising, given the expanding supply of higher education in the region. Increasing the supply of higher education has been made the main objective, in some cases to the detriment of other equally important aspects such as the quality of programmes offered, especially for those with fewer resources, and the adaptation of programmes to meet the specific training needs of traditionally excluded sectors of the population.

Argentina

Argentina's early experience with distance education took place in a rather bleak academic climate. Distance education was associated with correspondence courses, which in turn were associated with poor-quality education. However, various factors gave rise to new distance-learning methods in the late 1990s: larger Internet coverage and broadband coverage and the need to increase the supply of postgraduate training.

Virtual education[2] in Argentina is at a crossroads. Although much of the virtual distance education comprises postgraduate courses, extension programmes and parts of face-to-face courses, Argentina now has some entirely virtual undergraduate degrees. However, if we look at the overall picture, virtual education in Argentina is still at the early stages of development. Consequently, there remain a series of problems, such as the poor educational quality of much of the virtual-education material, the scant teacher training for virtual education, and the reduced capacity for introducing information and communication technologies (ICTs) into the teaching methods and for managing ICTs.

The government does not have policies focused on developing e-learning initiatives in higher education, despite its support for strengthening human resources in ICTs. The main grant schemes run by the Ministry of Education's Secretariat of University Policies and the Ministry of Science, Technology and Innovation include the ICT Grants, which focus on strengthening the human resources available for using ICTs and raising the number of students taking ICT-related degrees. Through this scheme the government acknowledges that ICT degrees are a priority to improve employment in the country, given the excess demand compared to the supply. Nevertheless, although the impetus given to ICT degrees is linked to the possibility of implementing virtual education programmes, the Argentine government does not have policies aimed at developing such initiatives in higher education. The only national government programme explicitly designed for e-learning is the Ministry of Education's Distance Education Service (*Servicio de Educación a Distancia*), which focuses on meeting the educational needs of the children of Argentines living abroad. This programme centres on a Virtual Campus with primary- and secondary-school material, the main purpose of which is to prepare the pupils so they can rejoin the Argentine education system once they return to the country.

Despite the lack of policies, there is a considerable number of virtual education programmes in Argentina. One of the most prominent is the Virtual University programme run by the National University of Quilmes (UNQ). This programme has an entirely virtual education system offering bachelor's degrees (*licenciaturas*) and foundation degrees (*tecnicaturas*). Since the university restructured its curriculum in 2011 the programme now offers common-core degrees (*Tronco Único*, similar to a traditional degree) and additional programmes (*ciclos de complementación*) for graduates, offering much more flexible training options. Another case worth highlighting is the National Technological University (UTN), which provides the entire university community with access to a range of ICT resources through its UTN Virtual

platform. The UTN also has a Global Virtual Campus platform, a pilot project it set up in 2007 to provide access to seminars and virtual classrooms which supplement subjects taught using face-to-face learning at the university's various sites.

Distance virtual education courses in Argentina are of fairly poor quality. One of the main causes is that this form of teaching was not always expanded to introduce new teaching methods and practices, but for other motives. Some universities saw the development of distance virtual education as an opportunity to increase revenue (private universities) or funding (public universities). There was also the view that this form of teaching could reduce the workload for students during their first years without requiring the building of new facilities, and that the system would be much cheaper to run. This first stage of the development of virtual education was marked by "the naive idea that digitising classroom lectures and posting them on line was enough to create a virtual course" (Rey, 2010). Similarly, the new methodologies used seemed to suggest that virtual repositories and tools were sufficient on their own to build knowledge. Using videos and the Internet alone as learning material or virtual forums as the only spaces for interaction turned these pseudo-virtual educational methods into poorly developed educational options.

Furthermore, the pedagogical model for virtual education in Argentina is poorly developed and outdated. E-learning has incorporated many different media and methods, yet the main constraint on its development is not the outdated technology, but the persistence of an obsolete educational model that is still being used out of complacency and out of a fascination with novelty. As a result, trust is placed in virtual media and innovations and too little emphasis is placed on assessing, criticising and improving the deficiencies encountered when these methods are implemented.

Virtual education has not been developed as a tool to increase equitable access and equal opportunities in education. To some extent, since its very beginnings distance education has been seen as a tool to expand the supply of education rather than as an opportunity to benefit from other potentialities to meet specific educational demands. More broadly, Argentina still suffers from a lack of information regarding trends in education, so it has been unable to build a planning policy based on criteria such as quality, relevance and equity.

Bolivia

The expansion and influence of new ICTs has affected the educational model of Bolivian higher-education institutions (HEIs), mainly in the area of administration. The incorporation of ICTs has focused on management resources. However, few academic developments have been achieved that allow migration to ICT-based educational models. Interestingly, the very factors that hinder the implementation of an integral education system and hinder access to the system (poor physical access and poor connectivity among different regions) also make the country an ideal environment for developing e-learning. Although ICTs are becoming increasingly popular in universities and have been absorbed into their education system, they have still not made an impact on traditional educational models. In 2010, only five universities had the necessary infrastructure (its own virtual platform) to implement virtual learning and blended learning in the future (Padilla, 2010).

Most e-learning courses currently available are postgraduate, and few are entirely virtual. A notable example is the University of San Simón (UMSS), which has strengthened its academic and administrative management by introducing virtual resources. Although the UMSS does not explicitly have a virtual academic model, the institution is notable for its use of ICT-based learning methods, especially in the Faculty of Science and Technology and the Faculty of Economics (Padilla, 2010).

Another notable example in virtual education are the linkages formed between universities and international co-operation. Specifically, the "University Specialist in Research and Knowledge Transfer Planning and Management in Universities" course aims to bring together scholars from various public and private universities to train them in designing and organising a research and knowledge-transfer strategy and a university interface structure for their research centres. Introduced in 2009, the course has a blended format with 10% of sessions provided through itinerant face-to-face seminars in five of the country's nine *departamentos* (regions) and 90% provided via the virtual platform (Padilla, 2010).

The higher-education programmes have generally been successful at incorporating new technologies into their teaching, but they have not incorporated pedagogical changes as a result. Consequently, new technologies have been limited to their traditional role of supporting teaching.

Unlike face-to-face programmes, few virtual programmes are designed to strengthen equity. Bolivia is one of the Latin American countries with the strongest higher-education programmes aimed at indigenous populations.

However, e-learning has not been offered to indigenous populations. The development of such initiatives has largely been hindered by the connectivity constraints experienced by Bolivia today.

Brazil

Brazil has a long tradition of distance education. It first began using distance education in the early 20th century, offering correspondence courses. Between then and the 1980s there were few developments in distance education in the country, which were limited mainly to educational television programmes and the subsequent development of TV courses promoted by various private foundations and non-governmental organisations.

Distance education began to expand in the 1990s thanks to measures such as the 1996 Education Act (*Lei de Diretrizes e Bases da Educação Nacional*). The Act recognises distance education as a valid teaching method that is equivalent to other teaching models (Lupion et al., 2010). Two public universities were set to introduce distance-education methods and methodologies: the Federal University of Mato Grosso (UFMT) and the Federal University of Santa Catarina (UFSC). The UFMT "developed a distance-education model that provided face-to-face support for students in some cities, with libraries and study rooms and periodic meetings between students and their tutors" (Lupion et al., 2010). The UFSC, meanwhile, developed the first effective uses of the Internet, video conferencing and satellite teleconferencing to offer specialised courses, master's degrees and continuing education through distance learning" (Lupion et al., 2010)

Between 1995 and 2000 other universities began to introduce their own initiatives (AulaNet at the Pontifical Catholic University of Rio de Janeiro [PUC-Rio], Eureka at the Pontifical Catholic University of Paraná [PUCPR] and TelEduc at the University of Campinas [UNICAMP], etc.). These efforts laid the foundations for virtual-university models and the strategic use of Internet resources as learning tools and as tools for communication between students and tutors in distance courses.

Since 2000, Brazilian HEIs increasingly began to seek Ministry of Education accreditation to provide virtual higher education and expand their supply of courses. Between 2000 and 2007, the number of virtual HEIs grew from 7 to 48 in the public sector and from none to 49 in the private sector. The total number of public-sector and private-sector programmes also grew from

10 to 408 during the same period. The number of enrolments, meanwhile, increased from 1 682 to 36 9766 over the same period. In 2008 there were 727 961 students enrolled on e-learning programmes, representing 12.5% of the 5.8 million undergraduate enrolments in the country (Lupion et al., 2010).

Over the past two decades, distance/virtual education has received government support through a series of public policies. At the legislative level, the Brazilian government has issued a series of decrees through its Ministry of Education. These decrees (in 1998, 2001, 2004, 2005 and 2007) concern the regulation of various aspects and competences in virtual education in the country, from accreditation procedures to guidelines for implementing expansion models. In addition to the regulatory aspect of the government's first major milestone in the 1996 Education Act, the Ministry of Education has also introduced a series of other initiatives, including: *i)* the Distance Education Secretariat created in 1998 to develop ideas to improve the quality of distance education; *ii)* the National Educational Technology Programme (*Programa Nacional de Tecnologia Educacional*, ProInfo) created in 1997 to promote the pedagogical use of ICTs in public primary and secondary schools; *iii)* the National Teacher Training Network (*Rede Nacional de Formação de Profesores*) created in 2004 to help improve the training of pupils and teachers in public education by producing guidance material for distance or blended learning; *iv)* Rede e-Tec Brasil, a network set up in 2007 to provide technical and professional training through access to free, public distance courses offered in collaboration with the corresponding state, federal district or local authority; and one of its biggest initiatives, *v)* the Open University of Brazil (*Universidade Aberta do Brasil*), created in 2006 to set up on-site support centres to encourage public HEIs to include distance learning in their undergraduate and postgraduate programmes and to offer higher-education e-learning programmes to students and teachers, as well as training for administrative staff, tutors and directors at institutions that are introducing distance learning.

The period of expansion of virtual education in Brazil enabled research and development to be conducted in the field, resulting in virtual education that is of relatively high quality. This momentum enabled the development of aspects such as virtual learning environments, university-designed virtual methodologies, administrative management strategies, pedagogical approaches and other approaches and tools related to the introduction of distance-education courses that have a strong virtual component. Consequently, in the past two decades during which this mode of education has been growing, a wide range of pedagogical methods have been developed and refined, including: TV education, in which satellite television is used for live broadcasts of classes; video education, which uses video classrooms for

playing pre-recorded classes; blended learning, where distance education is supported by face-to-face methods such as tutorials and access to laboratories and libraries; the Virtual University, a model that makes intensive use of digital technologies to deliver content and to enable interaction between students and teachers, limiting face-to-face sessions to exams; and models that alternate between distance-education periods and periods of regular attendance at educational institutions. These measures have led to relatively high-quality e-learning programmes in Brazil, some of which are even of better quality than face-to-face programmes. A study conducted in 2005 and 2006 by Professor Dilvo Ristoff based on the results of the National Student Performance Exam (*Exame Nacional de Desempenho de Estudantes*) found that distance learners performed better in 9 of the 13 areas assessed during their first semester after admission, and 7 of the 13 areas assessed during their final semester before graduation (Lupion et al., 2010).

The inclusiveness of virtual education in Brazil seems to be one of its main strengths and potentialities. Data show that distance programmes have more married students (52% vs. 19% in face-to-face programmes), more students with two or more children (44% vs. 11%), fewer white students (49% vs. 68%), relatively poorer students (43% vs. 26% with a salary of no more than three times the minimum wage and 13% vs. 25% with a salary of ten or more times the minimum wage), and students whose parents have poor qualifications (18% vs. 51% for fathers and 24% vs. 54% for mothers), etc. (Lupion et al., 2010). The data suggest that the way distance learning is being introduced in Brazil is improving access to higher education.

Chile

Distance/virtual education in Chile developed in three main phases: *i)* the correspondence phase, when material was printed and sent by post; *ii)* the media phase, when radio was used and, in particular, educational television was developed; and *iii)* the current phase, in which distance education makes intensive use of ICTs over the Internet.

E-learning has been implemented by various HEIs in various forms such as e-support, blended learning and entirely virtual learning, with blended learning being the most popular. E-learning has mainly taken off in universities, but the other two types of HEI in Chile, vocational colleges (*institutos profesionales*) and technical colleges (*centros de formación técnica*), have also begun to introduce this mode of study. The educational content of the

programmes has focused on short, non-degree courses designed to provide working adults with skills and greater knowledge. Nevertheless, e-learning has gradually expanded to include postgraduate courses. In 2008, academic courses in Chile with online content were distributed as follows: doctorates 1%, master's degrees 8%, undergraduate degrees 9%, diplomas 27% and other courses 55% (Farcas, 2010).

One notable institution for the incorporation of e-learning initiatives is the Pontifical Catholic University of Chile (UC), with the programmes available through its Continuing Education Programme. Perhaps the best example of virtual education in the country is provided by the University of the Arts, Sciences and Communication (UNIACC). This institution began as a vocational college in 1981 before becoming a university in 1991. As early as the 1990s it began introducing ICTs as an essential part of its academic activity. As it did so, it began to introduce virtual tools such as the e-campus, a virtual platform that provided e-support and enabled the subsequent development of e-learning programmes. In 2004, UNIACC launched a pioneering initiative: the first 100% online commercial engineering programme. Today, UNIACC offers a range of entirely virtual undergraduate and postgraduate programmes. Its experience in developing virtual-education programmes is a good example of some of the developments made possible by this teaching method, which are by no means limited to pedagogical support.

Although the adoption of e-learning models should bring about changes to the traditional educational paradigm, especially in teacher-student interaction, not all institutions offering e-learning have managed to bring in such changes. Institutional experiences with e-learning have therefore had mixed results. Despite the government's and the educational institutions' expressed desire to include ICTs as an integral tool in education, e-learning has not been fully incorporated into Chile's higher-education system, a system for which there is no specific regulation certifying and guaranteeing that the quality of e-learning shall be the same as that of face-to-face education.

The introduction of certain forms of e-learning has reduced the impact of the physical distance between teachers and students, fostering more equitable access to higher education. In addition, new spaces for teaching have been created, resulting in more mature students (over 24 years old) and a better capacity to respond to the needs of adult students.

Colombia

One of the main events that boosted distance education in Colombia was the government's decision in 1982 to set up a Distance Education Subsystem (*Subsistema de Educación a Distancia*) because it was unable to meet the demand for education that existed at the time. The new distance-education institutions were subject to the same legal framework as standard post-secondary education, and tended to focus on technical programmes, even though their original objective was to introduce forms of distance education. In light of this situation, many higher-education teachers opposed the initiatives, considering them a threat to the stability and quality of the face-to-face teaching they provided. But perhaps the biggest problem was that its other distance education programmes disappeared at the same time that the Distance Education Subsystem – the only programme to receive financial support during those times of crisis – was introduced. Instead of building on past experiences, Colombia launched a new distance education model designed as a "substitution", and this was the main obstacle to the implementation of distance education in Colombia.

The programmes introduced in the 1980s failed to replicate the experience of hugely popular radio and television programmes that preceded them. In the 1980s only six universities in the whole country began to experiment with blended distance education methods, making almost no use whatsoever of audiovisual resources. At the time, the Ministry of Communications allocated the programme's slots and their infrastructure to commercial programmes.

The transition to third-generation distance education, i.e. via the Internet, was no less complicated an experience. The transition began in around 1989, when agreements were reached with foreign institutions such as Monterrey Institute of Technology (ITESM) in Mexico. However, during those early years the Colombian institutions and programmes focused on virtual enrolment, broadcasting and administration rather than on developing the academic content. In the mid-1990s, with distance education beginning to grow nationally and internationally, the Colombian Association of Distance Higher Education (ACESAD) was formed. To this day it continues to pursue its objective of introducing distance-education programmes into Colombia's various HEIs to promote quality-improvement strategies. The first national education programmes using digital media began in 1997 and 1998, but due to connectivity constraints virtual media were only used to deliver content on line and to replace printed material with digital material.

By 2008, Colombia had 44 institutions offering 170 e-learning programmes to 144 605 students on a wide range of subjects, at several levels of education and using various methods. E-learning accounted for 10.05% of enrolments in higher education (Facundo, 2010). The Colombian institutions with the most prominent e-learning programmes include the National Open and Distance University (UNAD), which currently accounts for half of e-learning enrolments (Facundo, 2010), and the National Academic Network of Advanced Technology (RENATA), whose services range from videoconferencing and virtual libraries to national virtual-education centres and links with international e-learning networks in Europe and the United States.

Much of the expansion of virtual education in the last decade can be attributed to each of the pioneering institutions that took the decision to introduce it. The Ministry of Education also played an important role. The ministry has been participating through the National Council for Quality Assurance in Higher Education (CONACES) and the Higher Education Quality Assurance System (*Sistema de Aseguramiento de la Calidad de la Educación Superior*), and by creating a number of programmes to promote and monitor access to ICTs in national educational institutions. These programmes include: *i)* the Conexión Total national educational network, which aims to improve the connectivity of the country's education centres by providing computers and improving Internet access; and *ii)* a system to monitor connectivity in education (*Sistema de Monitoreo de la Conectividad del Sistema Educativo*) and connectivity indicators to evaluate the progress of ICTs nationwide. Also, in 2008 the ministry created regulations for the quality assessment of distance-education systems, and the 2009 ICT Act (Law 1341) defined the general framework for formulating public policies on ICTs.

One of the biggest obstacles for the development of virtual education in Colombia has been its lack of e-readiness. In 1998, barely 1% of the population had Internet access, and in 2000 only 3.4% of the population had a computer (Facundo, 2010). Access to e-learning programmes was therefore limited to parts of the population with the resources to access the Internet. Colombia's technology remains only average for the region, but it has taken major strides in improving its e-readiness since 2010.

Costa Rica

The development of distance education in Costa Rica was accompanied by growth in demand for higher education. In the 1970s, Costa Rica began to see huge rates of population growth. Other factors, such as the growing middle class, better human development indices and a growing industrial sector, sparked growing demand for higher-education options in the country. In the public sector, in addition to the coverage provided by the University of Costa Rica, the government made efforts to develop new opportunities for recent school-leavers by creating the Costa Rica Institute of Technology (*Instituto Tecnológico de Costa Rica*) in 1971 and the National University of Costa Rica (UNA) in 1973. Private education began in 1977 with the Autonomous University of Central America (UACA). These new institutions were insufficient to meet demand, so the idea arose, inspired by the experience of the National University of Distance Education (*Universidad Nacional de Educación a Distancia*) in Spain and community colleges in the United Kingdom, to create a university that would use the new social media (radio and television at the time) in their teaching methods so that students did not need to move location for their education. Costa Rica thus created its own open university, the Universidad Estatal a Distancia (UNED), in 1977. The UNED was one of the first universities in the country to offer distance learning.

The UNED marked a turning point for distance education, which began to gather strength. Three decades later the UNED has become a model trusted by graduates and students in general. The UNED currently has 22 000 ordinary students and nearly 5 000 formal programmes delivered from 34 university centres throughout the country (Castillo and Torres-Díaz, 2010).

The Costa Rica Ministry of Education's e-learning policies are shaped by the principle of non-interference with universities and respect for their autonomy. Nevertheless, the government has taken certain measures that have indirectly affected the incorporation of e-learning. For instance, it introduced information technology (IT) teaching centres into secondary schools as a way of incorporating ICTs into compulsory education to generate demand for the use of ICTs in higher education. ICT use became widespread in public HEIs in 2005 as one of the key components referred to in the 2006-10 *Plan Nacional de Educación Superior Universitaria Estatal*, a government plan for public universities. It is important to note that with the rise of the Internet and the inclusion of ICTs in education systems virtual education has gone from being the least valued form of education to one of the most viable alternatives in education in the new millennium (Castillo and Torres-Díaz, 2010).

Today, the private sector (51 institutions) offers various forms of e-learning with various degrees of ICT use. These initiatives range from setting up virtual classrooms and virtual campuses to support face-to-face education to offering distance courses through virtual media. Moreover, the public sector focuses primarily on blended e-learning programmes that combine face-to-face teaching with virtual education, although it does also offer a range of entirely virtual undergraduate and postgraduate courses. It is important to underline that the UNED "has been the subject of all the country's efforts to reach out to a large segments of secondary-school pupils who aspire to enter higher education through distance learning, but this does not prevent the other three public universities from making major efforts to reach out to other sectors of society through their regional sites" (Castillo and Torres-Díaz, 2010).

In the area of accreditation, the National Council of Rectors (*Consejo Nacional de Rectores*, CONARE) set up the National Accreditation System for Higher Education (*Sistema Nacional de Acreditación de la Educación Superior*) in 1999, which in accordance with Law 8256 became the official quality-accreditation body for the country's university degrees and programmes in 2002. The institutions assessed by this accreditation system include the only four national universities whose conventional education programmes as well as their e-learning programmes have been accredited.

Despite the expansion of its HEI system and the wide range of courses offered, Costa Rica still has many shortcomings in the area of equitable access. Access to public education is 5.3 times higher among the highest income quintile than among the lowest income quintile; in the private sector this figure increases to 7.4 (Castillo and Torres-Díaz, 2010). As in other countries in the region, those with higher incomes complete more years of study, which strengthens the economic divide that already exists.

Dominican Republic

Higher education has expanded fairly quickly in the Dominican Republic from just one university in 1961 to 46 HEIs today. Only three of these are public (6%) and the rest are private (94%). Despite this uneven public-private distribution, 50% of the country's students attend the public Autonomous University of Santo Domingo, the oldest university in the Americas, so there is a relatively even balance between the public and private sector in terms of student numbers (Acosta, 2010). However, although conventional higher

education has grown in the country, the same is not true of "alternative" models such as distance education or e-learning, which has only been around for two decades.

The country's first experience with distance education was the Open University for Adults (UAPA), which opened in 1995. Today, only 5 of the 46 HEIs in the Dominican Republic offer e-learning programmes, with each institution having its own profile, educational model and mission. These five universities represent 11% of the country's HEIs and had 32 311 students, or 6.26% of the national student population, in 2009 (Aybar, 2010). The five universities are: *i)* the Open University for Adults (OUA), set up to provide advanced training to the various modes of distance education; *ii)* the University of the Third Age (UTE); *iii)* the University of the Caribbean (UNICARIBE), which describes itself as a blended-learning and distance-learning institution; *iv)* Félix Adams Experimental University (UNEFA); and *v)* the National Technological University (UNNATEC), focused on distance education programmes in science, technology and innovation.

The experience of incorporating ICTs into the Dominican Republic's education system is still at the early stage of development, and only a handful of institutions have tested using them for pedagogical purposes. The same is true of virtual technologies. While the education system has begun to use these technologies for administration and management, it still lags far behind in their pedagogical use related to designing courses, using digital tools and training students and teachers (Facundo, 2003 cited by Acosta, 2010). Thus, many of the forms of e-learning delivered by the country's HEIs still do not benefit from the pedagogical innovations introduced by the digital media.

Over the last decade, increased demand for education has given rise to new modes of study, increasing the pressure to introduce legislation, regulations, continuous-assessment procedures and quality-control procedures for the different modes of study. Indeed, the Dominican government's education policies have focused heavily on using technologies to support education.

In 2001 it created the National Higher Education, Science and Technology System (*Sistema Nacional de Educación Superior, Ciencia y Tecnología*), which seeks to regulate institutional diversity in education and create new differentiated education scenarios. The system makes it possible to create mechanisms to ensure the quality and relevance of services provided by HEIs and provides with a framework for implementing and consolidating new technological and virtual modes of study. Another example is the Ten-Year Plan for Higher Education 2008-18. It calls for modes of study to be diversified and for the combined use of face-to-face learning and distance learning to be increased in

HEIs, and says that educational institutions need to become more involved with their local communities and the productive sectors. The plan's assessment of the state of education says that there is very little diversification of educational offerings at the local level, too few postgraduate programmes, few links with international HEIs, and little support for those in the regions with less access to education. The assessment also notes that over the past few decades, measures to make virtual education in the Dominican Republic distinct from other modes of study have sought to replace traditional printed material with technologies such as radio, television and the Internet. The growing diversity of educational models has been one of the most significant changes that the Dominican Republic has experienced in higher education in recent years.

Regarding equitable access, higher education's coverage rate is very low (net coverage of around 11%) and e-learning is highly concentrated in private institutions, suggesting that those with fewer resources must have lower access.

Ecuador

In Ecuador, distance education began to emerge in the 1970s. In higher education it dates back to 1976, when the Technical University of Loja (UTPL) created the "open and distance method" (*Modalidad Abierta y a Distancia*) for a large segment of teachers around the country who had been unable to attend university but who needed to improve their pedagogical and other skills. Nine years later, the Escuela Superior Politécnica del Ejército (ESPE) began providing distance education independently in 1985. In 1995, Chimborazo National University (UNACH) began using a distance-education model with blended-learning components. And in 1997 Universidad Tecnológica América (UNITA) set up a virtual campus, from which it delivers five degree programmes. Similar forms of blended virtual course programmes are available at Santiago de Guayaquil Catholic University (UCSG), Pontificia Universidad Javeriana, Universidad de Especialidades Espíritu Santo (UEES) and Universidad Tecnológica Equinoccial (UTE), among other institutions.

In general, e-learning has been popular among a sector of the student population, who prefer it because it is less demanding in terms of attending lectures and following timetables. Today, most universities offer various forms of e-learning programmes. In 2008, for instance, as many as 14 HEIs had been delivering e-learning programmes since they began providing academic courses. E-learning was also offered by many foreign-based institutions such as the Latin American Social Science Faculty (FLACSO) (Guamán et al., 2010).

There are e-learning programmes for various levels of education, and these programmes have varying levels of development depending on the specific e-learning method used. Undergraduate programmes comprise those that are mainly face-to-face (56.5% of those currently being delivered and 25% of those being designed), blended programmes (41% and 50%) and entirely virtual programmes (2.3% and 25%). Diploma programmes comprise those that are mainly face-to-face (49.2% and 34.6%), blended programmes (49.2% and 45.8%) and entirely virtual programmes (1.5% and 19.6%). At the postgraduate level, the distribution is the following: for mainly face-to-face (54.3% and 33.3%), for blended programmes (40.8% and 56.6%) and for entirely virtual modalities (0.5% and 8%). Finally, for life-long education, the distribution is: mainly face-to-face (45.1% and 41.6%), blended programmes (50.9% and 33.3%), and entirely virtual (3.9% and 25%) (Guamán et al., 2010). These data illustrate that e-learning is still in its infancy, but the percentages for programmes still being designed provide hope for its future development.

The National Council for Higher Education (*Consejo Nacional de Educación Superior*) is currently developing a policy to introduce new regulation and accreditation for virtual and distance education. The quality of the programmes will be assessed based on their functions, scope, features, standards and indicators. However, the assessment model was put together with traditional, face-to-face education programmes in mind, so it still needs refining to match the specific features of e-learning.

There is no information available regarding how the introduction of e-learning in Ecuador has taken into account sectors of the population that have traditionally been excluded from higher education. However, it is clear that the main problem affecting the poorest sectors of the population in Ecuador is their lack of connectivity. The Ecuadorian government is seeking to increase the percentage of people connected to the Internet, reduce connection costs, and provide schools and HEIs with the necessary infrastructure to go on line.

Guatemala

Education in Guatemala has made very little progress in diversifying its educational methods. There are only three postgraduate e-learning experiences in the country.

The first experience is the University of San Carlos of Guatemala (USAC), which uses e-learning to free up overcrowded classrooms or to provide a solution where classrooms are not sufficiently equipped to cope with teaching so many students at the same time (Tobar, 2010).

The other two are the only two Guatemalan universities authorised to deliver distance education. The first is the Open Education Institute (IDEA) at Galileo University, which delivers six undergraduate degrees in Technology and Management using e-learning. The second is the USAC's master's degree in Environment-Oriented Education, which in 2007 decided to enrich the learning experience by using virtual media, especially the Internet (Tobar, 2010).

Because e-learning is not very developed in the country, no regulations have yet been introduced for this mode of learning, let alone any policies to accelerate its implementation.

It is notable that Guatemala has one of the youngest populations on the continent, but one of the lowest rates of enrolment in higher education. This scenario gives e-learning great potential to improve education in Guatemala and increase access and coverage.

Honduras

Inspired by the UK's Open University model, the National Autonomous University of Honduras (UNAH) set up a Distance Education University System (*Sistema Universitario de Educación a Distancia*, SUED) in 1981, partly in response to entrance exams that restricted access to face-to-face higher education. The main reason that the UNAH was formed was to provide access to higher education in remote areas where the university did not have the capacity to plant regional sites, and in areas where the geography and socio-economic circumstances made it difficult for the population to travel to larger towns and cities for face-to-face learning.

Between 1986 and 1988, four sites were opened offering bachelor's degrees in Education Studies and Nursing. The distance education system continued to increase its coverage and hire more teachers, but this growth was not accompanied by sufficient quality control and pedagogical skills were not updated. The university's failure to update its methodologies allowed the quality of teaching in the e-learning system to decline, opening up a gulf

in the level of assessment of educational standards compared to the level in conventional education.

In 1991, the University Council of the UNAH decided to tackle these problems and intended to conduct an assessment of the SUED before restructuring it. However, the assessment never took place, despite enrolment having been suspended during the first part of 1992 to make way for it. Even though the quality of the SUED's teaching model is poor, the UNAH's e-learning programmes have already grown considerably in Honduras, representing 9.1% of enrolments in 2007. The delay in the restructuring of the SUED has therefore affected thousands of students, resulting in less valuable qualifications (Calderón and Rama, 2010).

In 2005, the UNAH set up a Transition Commission to initiate a university reform. The Commission decided that it needed a General Plan for Comprehensive Reform of the SUED, where exchange of research knowledge, especially with Brazil, would be of paramount importance. The proposal sought to modernise and reorganise the system, ensuring improved quality of service through a new model. The reform also sought to harmonise face-to-face learning and e-learning in a number of areas, including profiles, objectives and weight as well as student-selection processes, so that the only real difference between the two would be the teaching-learning method used and the duration of the courses. Specific initiatives were also considered for e-learning programmes, such as orientation courses and study methods. Although the restructuring of the SUED was completed in 2007, a series of institutional constraints have affected the implementation of the higher-education reform in Honduras, including labour disputes and academic disputes, preventing many of the proposed reforms from being implemented.

Although progress has been made in increasing access to higher education, many people still remain without access. Unequal access to education mainly affects the poorest sectors of society, who do not have enough time to pursue studies because of the daily jobs they have to do for their upkeep (Brunner and Ferrada, 2011). Moreover, as suggested by the connectivity indicators, access to the resources needed to enrol in virtual education is restricted, so the poorer and more remote villages are still excluded.

Mexico

Today, Mexico has a wide range of e-learning offerings covering around 7% of total demand for higher education. In absolute terms this amounts to 200 000 students taking various types of programmes, but especially advanced technical degrees and bachelor's degrees.

Since its inception, distance education has developed along the same lines as the reforms made to the higher-education system. Between 1989 and 1994, the National Education Modernisation Plan (*Plan Nacional para la Modernización Educativa*) set the basic guidelines to adapt the system to the requirements of the North American Free Trade Agreement, which demanded faster modernisation of higher education and a reconsideration of how a career should be pursued in a labour market marked by growing trade liberalisation and greater competition. Against this backdrop, the Secretariat of Public Education, supported by other institutions such as Monterrey Institute of Technology (ITESM), the University of Guadalajara (UDG) and the National Autonomous University of Mexico (UNAM), launched a series of projects to build telecommunications infrastructure so that distance-education initiatives could be developed (Amador, 2010).

Between 1995 and 2000, the Educational Development Programme (*Programa de Desarrollo Educativo*) focused on strengthening higher education through quality assurance, equitable access and diversification and consolidation of institutions, programmes and skilled academic staff. The programme established that the various modes of education made available to the public needed regulation in a way that would take into account the specificities of the model. It therefore created the Project for the Development of Open and Distance Education so that it could properly manage both modes of education. Another important measure driven by the Educational Development Programme was to increase the coverage of e-learning programmes through the Educational Television Network (EDUSAT) and the Internet. With the support of UNAM and the National Polytechnic Institute (IPN), the programme also implemented the National Network for Educational Videoconferencing (*Red Nacional de Videoconferencia para la Educación*), which to this day continues to provide the resources to produce e-learning programmes; the University Internet Development Corporation (*Corporación Universitaria para el Desarrollo de Internet*), a virtual platform that develops e-learning applications and projects; and the National Network for Distance Higher Education (*Red Nacional de Educación Superior a Distancia*) (Amador, 2010).

Between 2001 and 2006, the National Education Programme proposed a number of reforms in higher education, including a Master Plan for Open and Distance Higher Education dealing with basic issues such as implementing technical-support networks and academic training for distance teaching. This stage marked the consolidation of regulations and standards for the country's main distance education institutions (Amador, 2010).

Finally, between 2007 and 2012 the Sectoral Education Programme (*Programa Sectorial de Educación*) served to boost the open, distance education system that had been developed over the previous five years. The programme's guidelines led to the creation of the Common Area for Distance Higher Education. These 39 institutions that form the network work together to develop projects, academic programmes, and exchanges of ideas and knowledge (Amador, 2010).

One of the limitations of the e-learning model is that access to higher education among the poorest sectors of society remains low. For every six students from the highest income decile there is only one from the lowest decile. Similarly, although in many countries e-learning is used to make higher education available to rural and/or remote areas, such areas in Mexico have low penetration rates for the Internet and other technologies.

Panama

Distance education was first introduced in Panama in 1986 by the Inter-American Distance Education University of Panama (UNIEDPA), an institution whose teaching model emphasises self-learning (students organise their time and the pace at which they study), broad coverage (a teaching model designed for those who are unable to pursue conventional courses), and interactive education (using a variety of resources, material and technologies to facilitate self-learning). Three different methods are used in this model: further education (conventional studies), distance education and stand-alone courses (self-managed studies). The pioneering experience of the UNIEDPA allows us to assess the status of e-learning in Panama. This assessment suggests that e-learning is only possible through co-operation with domestic and foreign HEIs and other public bodies whose work involves education (de Escobar, 2010). Another noteworthy experience in the development of e-learning was the launch of the Open and Distance University of Panama (UNADP) in 1996.

The private institution offers various modes of e-learning for all its technical degrees, bachelor's degrees, specialisations and continuing education.

As the number of HEIs has grown in Panama, so has the number of universities offering e-learning programmes. The official (public) universities offering e-learning include the Technological University of Panama (UTP) and the University of Panama (UP). In addition to its ordinary courses and distance courses, the UTP offers a series of lifelong learning courses in the use of ICTs and virtual media. It also possesses IT tools such as e-mail, virtual campuses, videoconferencing, Moodle course-design platforms and an educational digital television programme.

The growth of the virtual-education model makes it necessary to establish official guarantees on the credibility and recognition of this form of education and to maintain certain standards in the quality of education delivered. Such initiatives have tended to come from organisations outside the Panamanian education system. The latest accreditation regulations passed by the Panamanian Ministry of Education in July 2006 created the National Assessment and Accreditation System for Quality Improvement in University Higher Education, but this system does have criteria specifically designed to assess the unique features of e-learning. For these reasons, most universities with e-learning programmes use a quality-assessment model designed by external organisations such as the Association of Private Universities in Central America (AUPRICA), the Technical University of Loja (UTPL), the Central American Higher University Council (CSUCA) and the Ibero-American Network for Accreditation of the Quality of Higher Education (RIACES).

Overall Panama has very few policies to promote e-learning, which presents a problem to most institutions that offer an e-learning programme, whether blended or entirely virtual. Indeed, the UNADP and the UNIEDPA are the only universities that have legal accreditation for their e-learning programmes. However, with more and more e-learning initiatives being introduced, this form of education could have a bright future if the programmes are well managed, with public policies to support them.

Although improving equity of access is an explicit commitment of the higher-education system, specific domestic policies are still needed in this area, as is an appropriate regulatory framework.

Peru

Unlike other countries in the region, Peru does not have a long tradition of distance education, nor does it have a university specifically created to offer distance courses. The universities that currently offer e-learning programmes started out providing face-to-face teaching. Only later, in response to growing demand for higher education, did they take measures to introduce e-learning in order to attract new segments of the student market.

Alongside this national trend of increased demand for education, the expansion of ICTs and competition among HEIs to incorporate ICTs into their education systems has also been a factor that has encouraged HEIs to set up virtual education platforms (webmail services, virtual campuses, intranets and online resources) to complement face-to-face educational activities and more generally to introduce e-learning.

Peru has 75 officially recognised universities, 31 public and 44 private. Of the 31 public universities, only 2 have e-learning programmes, while another 12 have at least some kind of virtual portal. Of the 44 private universities, however, 10 have e-learning programmes, while another 15 use virtual portals.

Although the introduction of virtual platforms has become widespread among Peruvian HEIs, there are still very few e-learning programmes in Peruvian universities, and those that do exist have not been running for many years. There are two initiatives that are of particular interest.

The first is the virtual education programmes at the Pontifical Catholic University of Peru (PUCP) introduced by the Faculty of Education and its Centre for Educational Research and Services (*Centro de Investigaciones y Servicios Educativos*), which were upgraded in 2001 to include e-learning tools. Today, the *PUCP Virtual* platform is responsible for "virtualising" the master's degrees, diplomas and other postgraduate programmes at the university. It also offers the INFOPUCP Courses, a virtual educational programme comprising short courses, refresher courses and specialisation diplomas. The university also provides students with a wide range of Internet services, such as audio and video upload and download platforms, blogs, chat facilities, forums, wikis, e-mail, a virtual campus, an intranet, live streaming, and virtual repositories of journals, theses and documents.

The second is the Open University System (*Sistema de Universidad Abierta*) created in 2004 by Uladech Católica (*Universidad Católica Los Ángeles de Chimbote*). It offers blended-learning degrees in Education, Law, Accounting, Administration and Tourism Business Administration. After completely restructuring its

courses and syllabuses and providing the necessary training to its academic and administrative staff, the university introduced blended e-learning as its main teaching method for undergraduate courses in 2007. Two years earlier the university had already introduced virtual tutorials through its virtual campus with a Virtual Education System for the Systems Engineering, Civil Engineering and Psychology degrees. In 2009 the University had 27 046 students, of which 21 521 (79.6%) took blended-learning courses, 4 096 (15.1%) were part of the Open University System and 1 429 (5.1%) were part of the Virtual Education System.

Although the development of such programmes is still in its infancy in Peru, the number of students opting for these modes of study and the number of HEIs willing to introduce them is constantly increasing, with demand for higher education continuing to grow steadily year on year (Brunner and Ferrada, 2011).

Although enrolment in higher education is currently growing rapidly, e-learning in Peru is heavily limited by the issue of prestige, with the education system showing little interest in providing quality standards and accreditation for these kinds of programmes. According to Camones and Valdivieso (2010), "the idea persists that distance education is of low quality as a result of its delayed regulation as a formal mode of study. Universities that implement these systems do not generally have specialists in distance education, and among teachers there is a silent resistance to acquiring training and using these strategies in the subjects they teach. Some institutions, meanwhile, lack a distance-education model to respond to the academic needs of students as a result of their situation and the type of career. Distance education still has a high drop-out rate because many students do not adopt the right mindset for self-learning, the study material is inadequate and the tutorials system is inefficient" (Camones and Valdivieso, 2010).

Certification platforms in Peru were incorporated into legislation in 2009 through the Quality Model for the Accreditation of University Careers, but the legislation only deals with setting the minimum framework for quality assessment. Otherwise, there are no major government policies to promote the development and incorporation of e-learning.

In terms of equity, e-learning was developed in such a way as to attract a greater share of the growing demand for higher education, so greater emphasis was placed on attracting students with a high purchasing power. Consequently, for poor and/or traditionally excluded sectors of the population, e-learning in higher education has not provided easier access to advanced training, and its programmes do not respond to specific training needs.

Uruguay

Today's university system in Uruguay is dominated by the University of the Republic (Udelar), which provides open, unlimited access to all Uruguayans and has 70% of human resources in research and innovation. There are also 4 private universities and 11 university institutes. In these institutions, initiatives to develop e-learning using ICTs only began fairly recently. By 2002 there were 12 ordinary e-learning programmes (in addition to various short programmes and specific courses) out of a total of 56 courses developed throughout the history of distance learning in Uruguay. There were three institutions that began to develop e-learning: ORT University, which introduced distance education in 1996 with 38 programmes; Udelar, which introduced distance education in 1998 with 12 programmes; and the Catholic University of Uruguay (UCU), which introduced distance education in 2001 with 3 programmes. Because the predominant use of new ICTs was taken into account when these programmes were launched, they were developed on the Internet to be delivered through blended e-learning or entirely virtual e-learning (Chiancone and Martinez, 2010).

Today, e-learning is available at more institutions and for more programmes than ever before. The institutions fall into four groups:

1. Institutions with blended e-learning programmes. These include the National Public Education Administration (*Administración Nacional de Educación Pública*, ANEP), which is responsible for training media teachers; ORT University, which offers a diploma and master's degree in Education; the UCU, which provides courses for academic staff who teach the postgraduate courses in University Teaching and Education; the Inter-American Vocational Training Research and Documentation Centre (IICA), which trains e-learning tutors; and the Inter-American Centre for Knowledge Development in Vocational Training (Cinterfor), which carries out distance activities for institutional strengthening.

2. Institutions with blended e-learning programmes *and* entirely virtual e-learning programmes. The *Instituto Plan Agropecuario* (Agricultural and Fisheries Plan Institute), for example, offers short courses in livestock farming, while the Technological Laboratory of Uruguay (LATU) offers individual courses and course series on a range of subjects through both blended learning and entirely virtual learning.

3. Institutions with entirely virtual e-learning programmes. These include the "Uruguay Agroalimentario al Mundo" (Uruguayan Agrifood for the World) distance-education platform, a partnership between public and private HEIs that runs courses for the Uruguayan agrifood industry, and "FLACSO – Proyecto Uruguay", which runs two postgraduate courses and two diplomas related to education.
4. Institutions working to create the conditions for e-learning. One such institution is Udelar, which in 2009 began a project to make the pedagogical use of ICTs widespread in the university. It has already implemented its own virtual-education environment in Moodle and has trained 203 teachers in the educational use of ICTs. Another is AGEISC, which develops projects to implement hardware and software infrastructure to increase the ICT skills of institutions and people. AGEISC's work includes implementing Massachusetts Institute of Technology's "Plan Ceibal", which greatly increased Internet access among Uruguayan schoolchildren and their families. The ANEP's central projects also seek to create the conditions for e-learning. The ANEP is improving the URUGUAYEDUCA website and its own connectivity and is working to implement an administrative management software package.

Uruguay lacked a regulatory framework for e-learning until late 2008, when an Education Bill (*Ley General de Educación*) was proposed recognising the validity of all forms of e-learning and setting basic criteria for its regulation. Apart from the need for a regulatory framework and a long-term development policy, one of the main obstacles to the development of virtual education could be a shortage of human and material resources, making it difficult to provide the necessary infrastructure and skilled staff for it to expand significantly.

Access to higher education is widespread in Uruguay, with e-learning facilitating the enrolment of sectors of the population with special needs, such as those already integrated into the labour market or those living in largely inaccessible places.

Venezuela

Distance education's history in Venezuela goes back to the 1960s, when the National Institute for Educational Co-operation (*Instituto Nacional de Cooperación Educativa*) and the Institute for the Professional Development of Teachers (*Instituto de Mejoramiento Profesional del Magisterio*, IMPM) began to develop correspondence courses. In the 1970s the National Open University (UNA) was founded with the mission of training professionals in a range of disciplines to meet demand for services in the country, and the institution set about developing distance courses. Subsequently, the Central University of Venezuela began to offer what it called Supervised University Studies (*Estudios Universitarios Supervisados*), which essentially formed the foundation for the development of distance education in Venezuela. This was joined by other institutions such as the IMPM, Cecilio Acosta Catholic University and the University of Zulia (LUZ). In the 1990s a process began to incorporate ICTs into the teaching-learning processes, and institutions began to emerge that established new innovation models in applying technology tools to teaching, but without official guidelines regulating how they were implemented in developed. Since the turn of the millennium there has been an overall trend among HEIs to incorporate the use of ICTs into their institutional model. In 2007, this gave rise to the National Distance Higher Education Project (*Proyecto Nacional de Educación Superior a Distancia*, PNESD) designed by the OPSU university planning agency (*Oficina de Planificación del Sector Universitario*) to systematise and regulate the development of distance education and guarantee its quality so it can develop and coexist with face-to-face learning in undergraduate and postgraduate programmes.

Over time, other HEIs have sought to increase their use of e-learning and incorporate ICTs. There are basically two kinds of institutions that provide this mode of study in Venezuela: *i)* the UNA, which claims it is the only university offering entirely virtual e-learning; and *ii)* a number of HEIs that have gradually incorporated ICTs and e-learning modes of study into their face-to-face programmes and are now offering blended-learning courses. Venezuela currently has 48 registered universities, of which 25 are national universities (10 autonomous and 15 state-dependent). All but 5 of the national universities offer blended e-learning programmes. The remaining 23 universities are private, of which 13 also offer e-learning. E-learning is therefore offered by 33 universities, or 69% (Dorrego, 2010).

The proposed national distance-education standards drafted in 2009 (*Proyecto de Normativa Nacional de Educación a Distancia*), currently pending

approval, established guidelines for the development of e-learning in HEIs based on three criteria:

- academic: related to following the pedagogical principles supported by the Distance Higher Education System (*Sistema de Educación Superior a Distancia*);
- technological: related to creating the scenarios and technological infrastructure (hardware and software) for smoothly incorporating ICTs into the HEIs;
- management: related to establishing actions to co-ordinate, plan and assess the processes involved in introducing and developing e-learning in HEIs (García, Rodríguez de Ornés and Vargas, 2010).

The National Distance Higher Education Project specifies that any distance-learning initiative must include certain measures to guarantee equitable access. Specifically, it refers to fair admission rules and states that initiatives must be taken to where they will be most beneficial.

There are basically two distinct cases in which distance education has been introduced in Venezuela:

1. The Central University of Venezuela (UCV) is one of the pioneers of distance education. Its distance education has evolved through three stages. The first began in 1975, when instructional material was used and students attended periodic face-to-face tutorials. This form of distance education still holds great prestige. The second began when the university created the Distance Education Committee in 2001 to develop the Distance Education Programme. The third began when the aforementioned programme had been completed and it was reoriented to form the Central University of Venezuela Distance Education System (SEDUCV), which was launched in October 2007 and charged with re-engineering the distance-education programmes used by the university since its inception.

   The strengths of the e-learning programmes offered by the UCV are as follows:

   - Their creation and organisational structure were approved by the University Council.
   - They have introduced new, student-focused educational paradigms and new pedagogical models that assign new roles to teachers as facilitators.

- They provide new opportunities for studying.
- They have brought about the upgrading of the institution's technology.

However, they also have a series of limitations: the shortage of financial resources and available budgetary allocations, the need for training material for academic staff, technology infrastructure constraints, constraints on hiring staff, and the inability to issue university qualifications for e-learning. We can therefore conclude that virtual learning at the UCV is still in its infancy, and major challenges lie ahead for the university's programmes.

2. Rafael Belloso Chacín University (URBE) set up the Distance Studies Bureau (*Dirección de Estudios a Distancia*) in 2002 to deliver virtual e-learning programmes, thus providing access to blended courses and diplomas and communication with teachers via the Internet. The use of "virtual mobility" as a replacement for physical mobility reduces distances and costs and enables access to education without time or geographical constraints. Students can also organise their studies in a more flexible manner, among other benefits. To guarantee that these virtual e-learning programmes function, the URBE provides content that it has designed specifically for its students and offers a dynamic graphical user interface, online support from course tutors via a virtual platform, and assessments of participants by academic periods. The combination of all these facilities has helped make virtual learning at URBE a success as an alternative and/or additional medium to conventional learning.

Notes

1. This section has been compiled based on information taken from secondary sources.
2. As has been discussed throughout this report, the terms "e-learning" and "virtual education" are used interchangeably.

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