Chapter 4

Open Access and OER in Latin America: A survey of the policy landscape in Chile, Colombia and Uruguay

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Summary

This chapter presents an overview of the mechanisms (funding, policy, legislative and procedural) adopted by Latin American governments with respect to Open Access and Open Educational Resources (OER) initiatives in the higher education sector. It addresses three questions: How do the higher education systems of Chile, Colombia and Uruguay operate and fund their activities in general? How do existing policies and processes incorporating Open Access and/or OER influence student access to learning and research materials in these countries? What policy, advocacy and community-building interventions might be useful for promoting Open Education activities in these contexts?

This study employed a descriptive, case study approach to examine whether and how Open Access and OER policies have been applied at national and institutional levels. It first engaged in an Open Education policy country-mapping exercise, then conducted a comparative analysis, and concluded the research process with a workshop conducted with 10 regional education experts and activists to validate findings.

Findings indicate that while each country has its own approach to funding higher education, there are few or no specific national and/or institutional policies aimed at promoting Open Education in the higher education sectors. Low OER awareness and a commercialised model of higher education appear to account for the lack of any OER policies in Chile, while in Colombia various national and institutional strategies reveal a country at a nascent stage of Open Education policy development. By contrast, the nature of OER management and extent of policy implementation in Uruguay suggests that it is an enabling environment for current and future open policy development. ▶

All of these countries are making investments in science, technology and innovation programmes and projects, making this the most fruitful field for potential Open Education advocacy.

Based on the outcomes of this study, a number of recommendations are proposed, including: fostering and strengthening networks among Latin American civil society organisations promoting Open Education; engaging with higher education stakeholders on how to develop open policies; promoting open policies and mandates for publicly funded research; developing bottom-up and top-down strategies for greater engagement with OER; and providing greater visibility to existing Open Education projects in the region.

Acronyms and abbreviations

BVS-LILACS	*Biblioteca Virtual em Saúde* (Virtual Library on Health)
BVSDE-REPIDISCA	*Biblioteca Virtual Desarrollo Sostenible y Salud Ambiental – Red Panamericana de Información en Salud Ambiental* (Virtual Library of Sustainable Development and Environmental Health – Pan American Network for Environmental Health)
CLACSO	*El Consejo Latinoamericano de Ciencias Sociales* (Network of Virtual Libraries of Latin American Council of Social Sciences)
Colciencias	Administrative Department of Science, Technology and Innovation
CONICYT	*Consejo Nacional de Ciencia y Tecnología* (National Commission for Scientific and Technological Research)
CRUCH	*Consejo de Rectores de las Universidades Chilenas* (Principals Council of Chilean Universities)
EIC	educational innovation centre
FOSS	Free and Open Source Software
GDP	gross domestic product
HEI	higher education institution
ICT	information and communication technologies
MECESUP2	*El Programa de Mejoramiento de la Calidad y Equidad de la Educación* (Programme for Improvement of Quality and Equity in Higher Education)
MoECo	*Ministerio de Educación* (Ministry of Education)
OER	Open Educational Resources
PISA	Programme for International Student Assessment
REDA	*Recursos Educativos Digitales Abiertos* (National Strategy for Digital Open Educational Resources)
Redalyc	*Red de Revistas Científicas de América Latina y el Caribe, España y Portugal* (Network of Scientific Journals from Latin America and the Caribbean, Spain and Portugal)

REMAR	*Red Mercosur para la Accesibilidad y la Generación Colaborativa de Recursos Educativos Abiertos* (Mercosur Network for Accessibility and Collaborative Creation of Open Educational Resources)
SIDALC	*Alianza de Servicios de Información Agropecuaria* (Alliance of Agricultural Information Services)
SciELO	Scientific Electronic Library Online
STI	science, technology and innovation
UdelaR	*Universidad de la República Uruguay* (University of the Republic of Uruguay)
UTEC	*Universidad Tecnológica* (Technological University)

Introduction

It is undeniable that the provision of equitable access to quality education is one of the greatest challenges facing Latin America. Within this context, increased investment in and focus upon higher education is a key element in the pursuit of more equitable societies.

Latin American countries are currently spending billions of dollars on education every year. In many of these countries, public spending on education has been increasing.[1] This has, however, not always translated into an improvement in the quality of education. For example, the 2012 Programme for International Student Assessment (PISA) reveals that Latin American countries have a low performance and high inequality level compared with other countries. It is noteworthy that all eight Latin American countries that participated in the 2012 PISA evaluation were located in the lower third of the ranking among the 65 countries analysed (OECD, 2014). According to the Inter-American Development Bank's analysis[2] of the 2012 PISA results, the participating Latin American countries are among the lowest-performing countries. Chile, which achieved the highest score among all participating Latin American countries, is ranked 50 out of 65, while Colombia and Peru are ranked 62 and 65, respectively (OECD, 2014). Latin America has consistently received worse educational results than its level of per capita expenditure on education suggests it should (OECD, 2014).

Open Education encompasses a set of enabling policies, practices, resources and tools that are freely shared with the intent to improve the accessibility, relevance, quality and effectiveness of education. This global movement seeks to encourage opportunities for participatory – and in some cases, personalised – learning through affordable teaching and learning materials, and to limit the barriers that hinder students and teachers from taking advantage of free and legally shareable materials. Open Education is grounded in the principle of the open exchange of knowledge and resources, and takes advantage of information and communication technologies (ICT), especially the internet, for digital publication and dissemination to widen access to knowledge.

Aspects of openness in education are evidenced in the use of Open Access research articles as educational resources for students, and in the creation and use of Open

1 http://hdr.undp.org/en/content/expenditure-education-public-gdp
2 http://www.iadb.org/en/topics/education/initiative-pisa/home,20388.html

Educational Resources (OER). The Open Access publishing model promotes immediate, unrestricted access to digital academic and scientific materials, particularly as relates to peer-reviewed journal articles. These articles are not only important in the context of promoting the global research agenda, but also constitute a valuable source of information in the teaching and learning context. The principles of Open Access have been enshrined in a number of international declarations[3] and promote the elimination of economic, legal and technological barriers to accessing knowledge.

OER are teaching, learning and research materials that are in the public domain or have been published with a licence that allows free use or repurposing by others (Atkins, Brown & Hammond, 2007). The principles of Open Education and/or OER have been promoted in key international declarations, specifically the Cape Town Open Education Declaration[4] and the Paris OER Declaration.[5]

The international community that supports the adoption of OER has become an organised social movement over the years. This Open Education movement seeks, among other things, the development and implementation of concrete policies that promote Open Access and OER at state and institutional levels, and operates on the foundational principle that research and educational resources are common goods that should be available for the benefit of all citizens. While education is understood as the process in which knowledge, ideas and information are shared with others, speaking about Open Education denotes an expanded educational approach. The adjective "open" not only refers to accessing materials, resources, tools, processes, practices and information, but also to the ability to reuse, modify and redistribute them to respond to individual, group and institutional needs. The adjective "open" also goes beyond to inform new methodological practices based on ideas of flipping the classroom and using modern methodologies, such as design thinking, to empower students, teachers and the school community to participate in building the knowledge they find locally appropriate.

Within this context, it is essential to move beyond thinking that more investment and expenditure on education is needed, to a critical reflection on how funds are spent on education, how the results of education expenditure can be made readily available to a broader public, and how the Open Education movement can contribute to meaningful responses or alternatives to the challenges of education accessibility and quality.

The aim of this chapter is to map, from the academic literature, policy documents and previous research undertaken by the Karisma Foundation,[6] the current mechanisms (expenditure, relevant policy, legislation and processes) employed by three Latin American governments – Chile, Colombia and Uruguay – in Open Education initiatives in the higher education sector in order to identify possible policy, advocacy and community-building efforts. This chapter will explore the higher education systems of these three countries in

3 See, for example:
- Budapest Open Access Initiative (2002) – http://www.budapestopenaccessinitiative.org/boai-10-recommendations
- Bethesda Statement on Open Access Publishing (2003) – http://legacy.earlham.edu/~peters/fos/bethesda.htm
- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) – https://openaccess.mpg.de/Berlin-Declaration

4 http://www.capetowndeclaration.org/

5 http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/WPFD2009/English_Declaration.html

6 The Karisma Foundation, based in Bogota, Colombia, was the organisational host for this study.

order to gain a better understanding of how they operate and are funded, and to identify the existing policies, legislation and processes incorporating open principles, either through Open Access and/or through OER. With the analysis of the data and the knowledge gained in the process of mapping the available information, the authors identify areas for action and opportunities for transformation and capacity-building at national and institutional level.

Brief overview of Open Access and OER initiatives in Latin America

The information available on the higher education sector in Latin America demonstrates various scenarios in relation to the affordability, quality and accessibility of education. In a region characterised by inequality, higher education can be a huge burden for low-income families. The acquisition of textbooks in Latin American universities represents an additional non-trivial financial burden for poor students. For example, as reported in 2013, the average annual cost of textbooks at the University of São Paulo (Brazil's largest public university) was 1 900 euros (approximately 2 420 USD) – 67% of the annual minimum wage in the country (2 820 euros, or approximately 3 590 USD, per annum) (Frango, Ochoa, Pérez Casas & Rodés, 2013). A similar situation occurs in Argentina, and the picture worsens in other Latin American countries (Frango et al., 2013).

University libraries in the region have tried to address the lack of textbooks by offering services for photocopying copyrighted material free of charge, but the resources allocated for this have been insufficient to meet demand. In many cases these initiatives were also shut down by multinational publishers which felt these practices negatively impacted upon their market share. As a result of the high cost of textbooks and the lack of alternatives, there is currently a ratio of 50 students per textbook in the most well-attended courses (Frango et al., 2013). Thus, some students end up sourcing illegal copies of textbooks, while others do not have any access at all. In the study conducted by Frango et al. in Argentina, Chile, Brazil, Ecuador, Mexico, Peru, Uruguay and Venezuela in 2013, just over 40% of survey respondents stated that they did not have access to the required textbooks; the type of material most (43% of respondents) used was photocopies of textbook chapters (Frango et al., 2013).

In this context, open access to educational and academic resources in higher education could be part of the strategy to close the gaps in educational provision and to support strategies of lowering the economic cost (for both households and universities) of teaching and learning materials (Babini, 2011). The implementation of Open Access initiatives in the region has, however, faced a number of challenges. A study on access to scientific production in Latin America and the Caribbean found minimal presence of scientific journal articles published with Open Access permissions (Babini, 2011). Nevertheless, while Open Access uptake remains restricted, there have been a number of service offerings aimed at promoting open access to academic publications in the region. These include: (1) multidisciplinary portals for accessing scientific journal articles, such as the Scientific Electronic Library

Online (SciELO)[7] and Redalyc;[8] (2) a directory of portals called Latindex journals;[9] (3) the Cybertesis portal;[10] and (4) the thematic digital repositories, such as SIDALC,[11] CLACSO,[12] BVS-LILACS,[13] and BVSDE-REPIDISCA.[14] This minimal Open Access content offering in the region is in stark contrast to the extensive scientific production "which remains within the circuit of international commercial distribution of journals, invisible and inaccessible to those who do not subscribe to those services" (Babini, 2011, p.35). This is not a minor issue, and more research is needed to understand the dissemination of journals and how libraries provide this access to students in the region. It is likely that the situation would be different for public and private institutions, rural and urban students, contact and distance programmes, and may be related to income.

Despite the challenges around Open Access implementation, there have been a number of noteworthy Latin American initiatives aimed at increasing access to educational and scientific content that has the potential to become an important educational resource for students. First, SciELO, initiated in 1997, aims to give visibility and universal access to scientific literature produced in developing countries, particularly in Latin America and the Caribbean. Initially, the SciELO project stemmed from a collaboration between the Foundation for Research Support in the state of São Paulo, the Latin American and Caribbean Centre on Health Sciences Information, and national and international institutions related to scientific communication. Currently, the project has expanded its network to include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Spain, Mexico, Peru, Portugal, South Africa, Uruguay and Venezuela.

The SciELO model comprises three components. The first is the SciELO methodology, which facilitates the interoperability of electronic publication of scientific journals, bibliographic and full-text databases, text retrieval, preservation of the electronic record, and the production of statistical indicators of impact and use of scientific literature. The methodology also includes "a set of policies, standards, guidelines, procedures, and tools regarding electronic publishing as well as evaluation and admission of journals for indexing and permanence in the collections".[15] The second component is the application of the methodology, that is, the website of the SciELO collection that profiles the electronic journal collections. The final component is the development of an ongoing partnership between national and international scientific communication stakeholders, the aim of which is to promote dissemination and improve the sustainability of the SciELO project.

Another initiative that should be highlighted in the context of promoting Open Access in the region is the Network of Scientific Journals from Latin America and the Caribbean, Spain and Portugal (*Red de Revistas Científicas de América Latina y el Caribe, España y Portugal*, or Redalyc),[16] a bibliographic database and a digital library of Open Access journals. The project was initiated in 2002 by the *Universidad Autónoma del Estado de México* with the

7 http://scielo.org/php/index.php?lang=en
8 http://www.redalyc.org/
9 http://www.latindex.org/latindex/inicio
10 http://www.tesislatinoamericanas.info
11 http://www.sidalc.net
12 http://biblioteca.clacso.edu.ar
13 http://lilacs.bvsalud.org
14 http://www.bvsde.paho.org/sde/ops-sde/ingles/repidisca.shtml
15 http://www.scielo.org/php/level.php?lang=en&component=42&item=3
16 http://www.redalyc.org/info.oa?page=/acerca-de/faqredalyc.html#tab3

overall goal of building a multidisciplinary scientific information system comprised of leading journals published in and about Latin America. Today, Redalyc also evaluates the scientific and editorial quality of knowledge outputs in Ibero-America.

Redalyc offers an online journal library that enables reading, downloading and redistribution by adopting open licensing of scientific articles. It also generates indicators to assess quantitatively and qualitatively the way science is undertaken and reported in Latin America. Thus, it supports efforts to make scientific findings available for greater discussion among experts and visible to the broader public, including students.

Additionally, in 2012, the science and technology bodies of eight Latin American countries signed a commitment to setting up an Open Access network known as the Federated Network of Institutional Repositories of Scientific Publications (LA Referencia).[17] The objective of LA Referencia is "to share and give visibility to the scientific production of higher education institutions (HEIs) and scientific research in Latin America" and it has worked as a boost to the Open Access movement in Latin American countries.[18] Since its inception, the LA Referencia strategy has focused on creating a framework of technical and organisational arrangements in order to build a federated network of institutional repositories. This initiative currently has a search engine for scientific articles from nearly 100 universities in Latin America, which has been made possible by the commitment of country institutions.

The outcome of the efforts driven by LA Referencia can be seen in the shaping of national policies to ensure open access to publicly funded research. Argentina, Mexico and Peru are three of the LA Referencia member countries with Open Access legislation in place.

In Argentina, Law No. 26.889 of 3 December 2013[19] legislated that, with state funding, the institutions of the National System of Science and Technology must create open, digital institutional repositories, in which national outputs from scientific–technological production are deposited (e.g. technical and scientific papers, academic theses and journal articles). In addition, the law provides for the mandatory publication of primary research data five years after collection in order to facilitate reuse and verification.

In 2013, Peru passed the Law on National Digital Repository of Science, Technology and Innovation Open Access,[20] which establishes the obligation to publish the results of all scientific research funded (as a whole or in part) by public sources in the national digital repository, which is interoperable with other regional and global repositories. In 2015, the Peruvian government passed a decree[21] regulating the application of the 2013 law.

In 2014, Mexico amended the Law on Science and Technology, the General Education Law and the Organic Law of the National Council of Science and Technology[22] to promote open access to all knowledge generated with public funding. The Mexican legislation also

17 http://lareferencia.redclara.net/rfr/sites/default/files/LAReferenciaTresPaginas.pdf

18 http://lareferencia.redclara.net/rfr/sites/default/files/edicion-especial12.pdf. The science and technology bodies in Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Peru and Venezuela are part of this project. In 2015, Costa Rica's science and technology body became a new LA Referencia observer country. The status of observer is transitory and involves interoperability testing on the status of the repositories through a first harvest test.

19 http://www.casi.com.ar/sites/default/files/ley26899- repositorios digitales.pdf

20 http://www.leyes.congreso.gob.pe/Documentos/Leyes/30035.pdf

21 http://portal.concytec.gob.pe/images/stories/images2013/portal/areas-institucion/dsic/reglamento_repositorio_nacional_alicia.pdf

22 http://www.dof.gob.mx/nota_detalle.php?codigo=5345503&fecha=20%2F05%2F2014

expanded the powers of the *Consejo Nacional de Ciencia y Tecnología* (CONICYT), the Mexican federal body responsible for developing national policies on science and technology, to develop a national strategy for the democratisation of scientific information and to develop quality criteria and technical standards to establish digital repositories. Additionally, it established the foundation for the creation of a national Open Access repository, operated by CONICYT.

The Open Education and OER movement in Latin America – a movement manifested globally through initiatives such as the Open Policy Network[23] and Open Education Week[24] – has mainly emerged in the wake of preceding Open Access activity. Compared to the Open Access landscape, however, the picture related to the Open Education movement is less encouraging. The debate around the adoption of OER is still incipient in Latin America, with the exception of Brazil and some small pockets of activity driven by local institutions. In Brazil, noticeable strides have been made in the OER debate and the community is growing in strength (Amiel, 2012; Amiel & Santos, 2013; Dos Santos, 2011; Rossini, 2012). It currently serves as an example of an enabling environment for creating public policies that foster the promotion and development of OER.[25]

Another milestone example of OER development in Latin America is the National Strategy for Digital Open Educational Resources (*Recursos Educativos Digitales Abiertos*, or REDA) of Colombia, adopted in 2012 (Ministerio de Educación Nacional, 2012). This strategy is unique in the region and focuses on higher education by establishing the roadmap for creating a national OER system. A Ministry of Education (MoECo) official defines REDA as an investment project that is only possible with the technical collaboration of HEIs. The participation of HEIs has therefore been paramount to its implementation.[26]

In Colombia, the REDA strategy is materialising through technical committees formed by HEIs engaged in the ministry-led process. In this way, the MoECo ensures the participation of key stakeholders in the process of developing the national system. REDA recognises three types of resources: learning objects, virtual courses and education applications. At the time of writing, 13 learning objects had been approved in the external quality assessment process and could be found on the REDA portal.[27] Although the 13 resources are openly licensed materials, the system has been designed so that publicly funded resources that are not open can also be shared there.

The Colombian strategy provides a good example of how to engage educational institutions and government in a joint project to promote, strengthen and enhance the production, management and use of OER. It is too early to assess the process, but it is a government commitment that is worth following closely.

Open Education in Latin America is still in its infancy. Mapping what is already happening in terms of Open Access and/or OER in the region may help to "inspire the creation and implementation of new OER initiatives in Latin America, enabling the sharing of content and pedagogical practices both regionally and internationally" (Inamorato, Cobo & Costa, 2012, p.17) and determine further opportunities for policy development.

23 https://openpolicynetwork.org
24 http://www.openeducationweek.org
25 http://www.rea.net.br
26 Presentation during a workshop, conducted during Phase 3 of this project, with Open Education experts and activists from Latin America, held in Bogota, Colombia, 4 September 2014.
27 http://186.113.12.159/web/rn/inicio

Methodology

A descriptive, case study approach to national and institutional policies around OER and Open Access was applied and developed in three phases: first, a country-mapping exercise was undertaken, followed by comparative analysis, and, finally, a workshop was conducted with education experts and activists to validate the research findings.

Phase 1 mapped Open Access and OER initiatives in five countries of the region: Chile, Colombia, Costa Rica, Ecuador and Uruguay. These countries were chosen based on ease of access from Colombia (where the research team was based), the presence of potential partners for further engagement, and public data availability. The lack of previous deep research into these countries also presented itself as an opportunity for the authors to understand new trends emerging from these less studied countries. After identifying study-site countries and defining measurement variables, a mapping exercise was undertaken to identify the three countries (Colombia, Uruguay and Chile) with the most enabling environments for undertaking advocacy activity regarding the development of Open Education policy. The mapping process utilised the following general and specific measurement variables:

- General variables: (1) civil society organisations working on Open Access and Open Education; (2) state policies on Open Access and/or OER; and (3) institutional policies on Open Access and/or OER.
- Specific variables: (1) plans and/or strategies regarding the processes identified in the general variables through which OER could be developed or acquired; (2) type of resource for cases where information showed the existence of OER or development plans; and (3) policies and/or legislation, including OER funding processes.

Phase 2 was comprised of a study of the higher education systems of the three countries identified in Phase 1. The result of this phase was three country reports[28] containing context-specific data, information on specific initiatives identified and interviews with key stakeholders. The three countries all had at least one civil society organisation working on developing and/or fostering Open Access and/or OER, as well as Open Education strategies and policies at the state or institutional level. The country reports were used as an additional source of information for analysis in this study.

Each country report includes the identification of the organisation or institution implementing some sort of Open Access and/or OER policy advocacy or activity, funding sources, quality assurance methodologies, and programmes for innovation and ICT. In addition, national copyright regimes were examined in order to identify legal frameworks that were conducive to openness in the education and research sectors. In order to gain a more concrete example of Open Education policies and programmes, eight universities (four public and four private from capital cities and the departments/provinces) in Colombia and Chile were examined. In Uruguay, only two universities (one public university that covers the vast majority of student enrolment in the country and one private university, which is the second-largest tertiary institution in terms of enrolment) located in the capital city of

28 https://docs.google.com/document/d/1NFGR4jidenlml1Orbm1bfklDnemuge-s6GWdQr35iAQ/edit#

Montevideo were reviewed. The university selection was based on the results of the 2013 Quacquarelli Symonds Latin American University Rankings.[29] Each country report was produced from collected and analysed data that are available in public and in bibliographic databases. Whenever possible, a series of interviews with relevant stakeholders was undertaken (four interviewees were approached, half of whom responded).

Finally, the comparative analysis in Phase 3 was undertaken through a workshop process in which Open Education experts and activists from Chile, Colombia and Uruguay, in addition to representatives from Argentina and Brazil, were presented with the information gathered and invited to review the country reports generated in Phase 2. During the workshop, the 10 participants had the opportunity to comment, criticise and provide supplementary data in order to improve the country report data. The workshop also provided a forum to discuss the latest developments in Open Education and possible approaches to strengthening practice. This information was gathered from October 2013 to September 2014, and formed the basis for the final mapping process of analysing all the information gathered in order to articulate the findings and recommendations presented in this chapter.

Overall, some challenges were encountered in conducting the study, which had an influence on the depth of findings and their validity. These included:

- Lack of transparency in educational resources acquisition and development budgets in the HEI analysis conducted in Phase 2.
- Low response rates on the part of some stakeholders approached with requests for information.
- High variability of publicly available information, hindering the comparative analysis between countries and within a single country.
- A dearth of studies on higher education in the region.

Findings

Latin America is a region of great similarities and disparities. In the higher education sector, the situation is no different. The diversity of systems poses a challenge for comparative analysis, but it is still possible to extract and examine emerging themes and trends.

Variety of funding streams demonstrating the level of state support in public higher education

The three countries analysed reveal differences within their social, economic, political and cultural contexts. This section presents findings on the funding streams for higher education in Colombia, Uruguay and Chile.

Colombia's higher education system consists of a total of 288 universities, professional technological institutions and technical-vocational schools, with a coverage rate of 45.5%

29 http://www.topuniversities.com/university-rankings/latin-american-university-rankings/2013#sorting=rank+region=+country=+faculty=+stars=false+search=

of a total population of 47 662 000 (Ministerio de Educación Nacional, 2014).[30] According to data from the National System of Higher Education Information (*Sistema Nacional de Información de la Educación Superior*), there were about 2.2 million students registered at tertiary institutions in 2014, which shows a growth of about 950 000 places in the last 10 years. Of the total number of enrolments, about 57% are in public HEIs and 43% in private institutions (Ministerio de Educación Nacional, 2015).

Expenditure within public HEIs is part of public social expenditure in that it is aimed at covering unsatisfied basic needs (specifically education), tends to the general welfare of the state, and improves the quality of life of the population (Presidente de la República de Colombia, 1996). Since 2010, the government has carried out a public finance strengthening programme in Colombian public HEIs in order to increase student enrolment and retention, bolster human resources, and improve physical and technological infrastructure and research. In 2013, the public expenditure on public higher education as a percentage of gross domestic product (GDP) was 0.82%. This figure does, however, represent a decline in terms of the resources allocated as a percentage of GDP in 2001, which reached 1.04% (Ministerio de Educación Nacional, 2014).

Public higher education funding in Colombia is undertaken through subsidies generated through supply and demand mechanisms for programmes at higher education level (Ministerio de Educación Nacional, 2010). The funding stream established to finance the supply mechanism is comprised of: direct contributions from national and territorial entities; resources that each institution generates through training courses, continuing education and research; the university's revenue stamp;[31] support from the Administrative Department of Science, Technology and Innovation (Colciencias); and resources granted by the Ministry of National Education for development projects (for instance, projects funded by the World Bank or any other international cooperation agency). In funding mechanisms designed to address the demand for higher education programmes, resources are assigned in order to ensure the entry and retention of high-school graduates in higher education. In this context, the Colombian Institute for Student Loans and Study Abroad (*Crédito Educativo y Becas en el Exterior*) offers loans and scholarships to encourage the retention of students in the system (Ministerio de Educación Nacional, 2010).

The University of the Republic of Uruguay (*Universidad de la República Uruguay*, or UdelaR) monopolised public higher education until 2013. A 2004 study by Collazo and Pebé demonstrated that UdelaR accounted for 90% of the total student enrolment in the country (80 000 students), as opposed to the private sector, which covered the remaining 10% (Collazo & Pebé, 2004). The latest data available on student enrolment show that 131 015 students out of 157 674 are registered in public universities, while the rest are in private institutions (Ministerio de Educación, 2014). In 2013, Law No. 19.043 of 28 December 2012 (Republica Oriental del Uruguay, 2012) mandated the establishment

30 According to articles 17–19 of Colombian Law No. 30 of 28 December 1992, technical-vocational schools offer vocational training programmes; professional technical institutions advance vocational training programmes, academic training programmes in professions or disciplines, and specialisation programmes; and universities are recognised as such and credited with their performance in the following activities: scientific or technological research, academic training in professions or disciplines, and the production, development and transmission of knowledge.

31 The university's revenue stamp, or *estampilla Pro-Universidad*, is a para-fiscal levy earmarked for strengthening state universities managed directly by those universities, on whose behalf the tax is imposed. Law No. 1697 of 20 December 2013 established this tax.

of a Technological University (*Universidad Tecnológica*, or UTEC) to bring public tertiary education to the interior of the country through the establishment of Regional Technical Institutes and to provide tertiary and vocational technical education according to the needs of the regional context. Public higher education in Uruguay has therefore been more evenly distributed between UdelaR and UTEC since 2013.

The private higher education sector does not, in general, receive funding from the state. Uruguay's public expenditure on higher education from 2002–2004 was less than 3% of GDP. Until 2004, UdelaR steadily received a low budget allocation from government, while the cost of tuition rose by 40%. From 2006–2009, the government approved a 50% increase in the university budget – a milestone that reaffirmed the government's commitment to free public education (Contrera, 2008). By 2010, public expenditure on higher education as a percentage of GDP was 4.5%. Although it exceeded the lag of less than 3% from 2002–2004, 2010 saw public expenditure decrease in comparison to the 2004–2009 recovery period. In 2011, the incremental GDP investment trend on education recovered (Ministerio de Educación Nacionale, 2015).

Certainly, Uruguay's context is unique in terms of the coverage of public versus private higher education. By contrast, Chilean higher education is one of the most unequal landscapes, regionally and internationally, and is known for being one of the most expensive and private systems worldwide. The higher education funding system is of a mixed nature, including public ownership and management by the state and its organs, as well as private, whether subsidised or paid for. In Chile, there are 59 universities, 25 of which are part of the Principals Council of Chilean Universities (*Consejo de Rectores de las Universidades Chilenas*, or CRUCH) – 16 of which are state universities and nine are private. All of them receive contributions from the state of Chile. The remaining 34 are private universities that do not receive state funding (Espinoza, 2012).

Higher education in Chile is founded on a self-funding system. Thus, at the time of writing, HEIs were funded through the payment of tuition and other fees by the students themselves, combined with the generation of resources through consulting and services, tuition increases, private bank loans, private entity donations, research funding, and investment projects funded by the Ministry of Education, among others (Espinoza, 2012).

The average annual fees of Chilean universities correspond to 41% of per capita income of the country. When compared with other countries – for instance, in the USA 28%, Australia 12% and Canada 10% – this turns out to be one of the highest fee structures in the world (Rodríguez Ponce, 2012). Chile's self-funding system does allow those institutions that wish to do so to develop their own financial markets, largely due to the absence of state regulation in this regard (Rodríguez Ponce, 2012). This provides institutions with an opportunity to explore alternative business models, sometimes for commercial ends, for educational provision.

The most important funding instrument for traditional Chilean universities belonging to CRUCH is the Direct Fiscal Contribution, a freely available subsidy. In total, 95% of the CRUCH funding budget is allocated according to historical criteria (that is, according to a formula that considers the basis of the total amount allocated to HEIs in the previous year), while the remaining 5% is distributed according to annual performance indicators (Ministerio de Educación, n.d.). There is also an Indirect Fiscal Contribution, granted annually by the state to all universities, professional institutes and technical training centres

that: (1) are recognised as HEIs by the Ministry of Education; and (2) admit the 27 500 best scores of the University Selection Examination (Ministerio de Educación, n.d.).

Additionally, the Chilean government has created other funding channels that categorise HEIs by various levels – universities which place an emphasis on teaching, research and doctoral programmes; universities with an emphasis on teaching and targeted research; and universities with an emphasis on teaching – and are intended to support students, infrastructure development, and the operation of institutions in order to enhance education quality and equity, and strengthen teaching. There are also special funds designated to promote the accreditation of technical and vocational training institutions. Other mechanisms that play a unique role in financing Chilean higher education are private donations, as well as student loans and grants.

Following far-reaching social unrest in which Chileans demanded an end to the commercialisation of higher education in 2014, the Chilean government has allocated 34 billion pesos (approximately 55 million USD) to the higher education sector (Centro de Estudios Consorcio de Universidades del Estado de Chile, 2014). Many have expressed their dissatisfaction with the actual budget increase announced by the government as part of the education reform that seeks progressive change to improve education quality, provide free education and put an end to admission inequalities. One of the central objections to the budget increase was that it was merely a subsidising policy for the demand component in higher education or state support to students, rather than one aimed at strengthening HEIs. This is premised on the fact that the predominant area of investment was in grants and loans to individual students rather than bailing out HEIs.[32]

Against this background, it is not unreasonable to conclude that, despite the upcoming implementation of the new education reform that seeks free education at all levels, Chile will face a major challenge in higher education provision in the near future. The higher education system that prevails in the country is one where education is conceived of as a market and not as a public good, with objectives aligned with public purposes, such as training of technicians and professionals, research, innovation and artistic creation.

Evidence of development and implementation of strengthening programmes in science, technology and innovation

The three countries examined are undertaking substantial efforts to strengthen science, technology and innovation (STI) in order to participate in the international arena of knowledge generation. It did, however, appear that knowledge management of Open Education in the fields of STI is fairly weak, presenting an opportunity for transformation. This section provides an overview of what is happening in each of the three countries examined with regards to STI development and implementation, with the aim of highlighting key areas for advocacy as well as Open Education opportunities.

In Colombia, MoECo is running several programmes to strengthen the National System of Educational Innovation, focusing on: teacher training in the pedagogical use of ICT; digital educational content management for K-12 via the educational portal *Colombia Aprende*;[33]

32 http://www.latercera.com/noticia/las-razones-del-rechazo-transversal-al-presupuesto-de-educacion-superior/
33 http://aprende.colombiaaprende.edu.co/

promotion of virtual programmes in the context of higher education; fostering of research in educational innovation utilising ICT by funding STI research projects; provision of equipment and connectivity to K-12 educational institutions; enhancement in the use, management and appropriation of ICT in the subnational authorities of educational administration; and the creation of educational innovation centres (EICs).

The EIC programme is progressive in its objectives and strategy implementation. The aim is to strengthen capacity for the modernisation of education by promoting innovation, research development and use of digital educational content (Centro de Innovación Educativa, n.d.). The strategy to achieve this goal is supported by the collaboration and participation of HEIs located in four different regions of Colombia, as well as government entities and the commercial sector.

It should be noted that within the framework of strengthening the current research agenda, MoECo, Colciencias, the national government and the commercial sector have worked together to bring new sources of funding from the Colombian Budget General's Office, the private sector, international partners, as well as domestic and foreign donors, in order to finance STI projects and activities. There is, therefore, evidence of strong interest in the country in terms of supporting scientific production, innovation projects and technology development – all areas in which advocacy is paramount in order to ensure open access to publicly funded outputs.

In Uruguay, national scientific research takes place almost exclusively within the University of the Republic, which is entirely funded by the state, as described above. Private HEIs are focused exclusively on teaching, with very little research activity taking place. Substantial challenges therefore remain in terms of addressing the STI agenda.

In Chile, it is worth noting the second phase (2006–2011) of the Programme for Improvement of Quality and Equity in Higher Education (MECESUP2), established by Resolution No. 6138/2013 (Ministerio de Educación Nacional, 2013) and facilitated by research funds managed by CONICYT, which funded actions for the improvement of academic innovation in accredited public universities. In terms of the arrangements around calls for participation and agreements concluded by the state through the MECESUP2, the intellectual property policy adopted was that the copyright on project outputs should be transferred to implementing institutions. That is, the default intellectual property approach adopted by this programme is to limit access to the knowledge produced (through restrictive, full copyright provisions), unless the implementing institution assumes a different stance and decides to adopt an open licensing strategy. In this regard, it is worth noting that the MECESUP2 funded a project implemented by the Universidad Austral de Chile, which has a focus on the design, creation and management of OER among students in the Health Sciences. This project is being implemented in collaboration with Brazilian technologists who are experts in OER and distance education and national scholars with expertise in technologies for learning and distance education. In this case, the decision has been taken to openly license the OER produced. Initiatives of this kind provide an opportunity to promote OER within programmes that aim to support academic and curricular innovation (Beltrán Delgado & Lehmann Preisler, 2014).

CONICYT has programmes promoting human capital formation and the strengthening of scientific and technological bases in Chile. Their commitment to this area is evidenced in the fact that its budget increased by 227% from 2006–2013 (CONICYT, 2014). This has

enabled it to double the sponsorship of projects dedicated to basic research. It has funded more than 40 research centres to develop their work in association with other institutions, provided financial aid to around 3 500 doctoral students, enhanced equipment and scientific infrastructure, and promoted international scientific cooperation (CONICYT, 2014).

While there has been substantial investment in scientific and technological research in Chilean higher education, CONICYT has adopted the MECESUP2 approach to intellectual property policy on investigation outcomes, in that the intellectual property becomes an asset of the implementing institutions. There are opportunities to promote openness in Chilean higher education in the context of this increased funding. Funding mechanisms and lines of action have been defined, but there is a need for more awareness about openness in the context of knowledge management and intellectual property.

Variety of manifestations of Open Education policies originating from HEIs or state funding agencies

Phase 1 of the investigation revealed that there are few or no specific national and/or institutional policies aimed at promoting Open Education in the higher education sectors of the countries surveyed. The Colombian National Strategy for Open Educational Resources (REDA), approved in 2012 by MoECo, does play a role and is aimed at promoting OER in higher education in Colombia, but the commitments adopted by the science and technology body as part of LA Referencia are yet to materialise in the form of policy or legislation on Open Access or OER.

According to information shared by MoECo[34] in 2014, there was an initiative within Colombia to publish a national framework on open access to knowledge, which could be an additional boost to the national REDA approach. In addition, MoECo has been working on an Open Access Bill. This activity suggests that Open Education policy development at state level in Colombia holds promise, but is still in a nascent stage of development as there had been no development in this regard at the time of writing.

While Colombia has the REDA framework, there is still much work to be done in the policy development sphere, particularly at the institutional level. None of the four Colombian universities examined showed evidence of a uniform policy framework for addressing the creation and reuse of educational resources. The Centre for Innovation in Technology and Education at the University of the Andes runs the Conecta-TE[35] portal that aims to connect professors with the university community in order to guide educational practices and provide a repository of educational resources developed by different faculties. This repository operates a variable licensing strategy, determined by the faculty or course for which the materials were created, suggesting that there is no university-defined strategy to promote Open Education policy, particularly in OER.

In contrast to the situation in Colombia and Chile, Uruguay actually seems to present an enabling environment for Open Education. The University of the Republic, which, as mentioned earlier, accounts for the vast majority of the country's total student enrolment, is the main site for the promotion of Open Access and the development of OER. The Central

34 Presentation during a workshop with Open Education experts and activists from Latin America, held in Bogota, Colombia, 4 September 2014.

35 http://conectate.uniandes.edu.co/index.php/conecta-te/el-portal

Board Council, the university's governing body, is internally promoting the adoption of policies intended to implement more open use of virtual resources, the use of Free and Open Source Software (FOSS), the creation of an Open Access repository, and the development of a proposal to foster Open Access in academic production.[36]

From a policy perspective, the Academic Technical Support Department of the University of the Republic's Sectorial Commission on Teaching, which is responsible for implementing the Programme for the Development of Virtual Learning Environments, operates under a notably broad definition of Open Education. In their approach, the Open Education ecosystem of the university consists of: (1) the use of OER; (2) the development of Open Educational Practices; (3) the use of FOSS; and (4) openly licensed publications.[37] The institution is currently engaged in two European Union-funded OER projects: LATin Project[38] and the Mercosur Network for Accessibility and Collaborative Creation of Open Educational Resources (*Red Mercosur para la Accesibilidad y la generación Colaborativa de Recursos Educativos Abiertos*, or REMAR),[39] both aimed at higher education. LATin Project focuses on creating textbooks that can be copied, printed, modified and distributed freely and legally over the internet. It also seeks to facilitate the cultural and linguistic adaptation of texts according to the region where they are used. REMAR aims to offer Latin American teachers a virtual communication space to share experiences and tools that facilitate the use of accessible educational content.

While the country does not appear to have a centralised policy for all HEIs, other "grassroot"-type OER programmes are appearing in Uruguay. These include the Wikipedia Project[40] and the OER Network[41] established as part of *Plan Ceibal*.[42] The Wikipedia Project in Education began in November 2012. It has been developed by the Uruguayan Education Training Board and *Plan Ceibal* in partnership with the Wikimedia Foundation and is supported by the National Administration of Public Education. Its goal is to "create spaces for appropriation of technology in the field of teacher education",[43] using Wikipedia in teaching and learning processes.

The Uruguayan OER Network "aims to promote the building of a Network of Centres for Teacher Education to create, share and reuse Digital Educational Resources"[44] that are part of a shared national repository. This initiative is part of *Plan Ceibal*'s renewed strategy, which aims to reposition teacher training centres with a focus on the creation of open educational content. These initiatives are implemented with the support of state education entities and are aimed at establishing Open Education principles in initial teacher education. Thus the nature of OER management and extent of implementation in Uruguay is very encouraging, suggesting an enabling environment for any future activity.

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36 See the institutional policy documents: Resolution No. 4 of 2013 of *Consejo Directivo Central of UdelaR*, Resolution No. 5 of 2013 of *Consejo Directivo Central*, and the University of the Republic Institutional Repository website (https://www.colibri.udelar.edu.uy).

37 Presentation during a workshop, conducted during the second phase of the project, with Open Education experts and activists from Latin America, held in Bogota, Colombia, 4 September 2014.

38 http://latinproject.org/

39 https://proyectoremar.wordpress.com/

40 https://outreach.wikimedia.org/wiki/Education/Countries/Uruguay

41 http://www.ceibal.edu.uy/art%C3%ADculo/noticias/docentes/Lanzamiento-Formacion-Educativa

42 http://www.ceibal.edu.uy/

43 https://outreach.wikimedia.org/wiki/Education/Newsletter/June_2014/Wikipedia_Education_Project_in_Uruguay

44 http://www.ceibal.edu.uy/

The Chilean case stands in stark contrast to the contexts in Colombia and Uruguay. According to the Centre for Research in Education report, investment in libraries and resources in this country is low (Espinoza, 2012). Added to this, the national knowledge generation and management system is built upon a competitive, market-driven approach aimed at private profit. None of the four HEIs examined had specific and articulated guidelines on OER and/or open access to educational, scientific and academic production.

It does therefore appear that the absence of Open Access and/or OER policies in Chilean universities may be linked to the commercialisation model of higher education. The current educational reform provides opportunities to enact openness within collaborative production and knowledge management models. An advocacy plan focused on funding structures, such as the National Commission for Scientific and Technological Research (CONICYT), could be useful in promoting the open agenda.

Raising awareness of Open Access and OER amongst the key stakeholders in Chilean higher education is an essential first step towards providing equitable access to affordable learning and teaching resources. Chile's commitment to LA Referencia can also be leveraged, since there has not been much progress in developing state policies on open access to publicly funded scientific publications. As the LA Referencia structure relies on government commitment, it may be an advisable strategy to explore in order to push the government to comply with the commitments made as part of this regional initiative.

Conclusion and recommendations

The Latin American context is complex and extremely diverse, but it is hoped that the analysis undertaken in Colombia, Uruguay and Chile can help to foster a better understanding of the Open Education movement in the region and provide suggestions for possible ways forward. These three countries all provide Open Education advocacy opportunities that have the potential to make a positive impact on higher education research, teaching and learning in those countries in the medium and long term.

In Colombia, the REDA framework provides a good starting point to boost transformation. Uruguay has an exceptionally enabling environment, conducive to the promotion of national Open Education policy. Chile, despite its well-established private higher education system, has started seeing a resurgence in the public approach to education in the context of its forthcoming educational reform, which also provides opportunities for advocacy. In each of these countries, the LA Referencia initiative provides a vehicle for the articulation of open policies at both institutional and national level, particularly as relates to scientific production derived from public investment. The countries will undoubtedly be enriched if there is a comprehensive action plan to raise awareness about Open Education and the potential benefits it can bring to society.

After more than a decade of Open Education initiatives around the world, there is now an imperative to develop a roadmap to drive the development of policy to support Open Education. Based on the outcomes of this study, the following recommendations are proposed:

1. Foster and strengthen networks among Latin American civil society organisations[45] promoting Open Education in order to enhance regional dialogue, make experiences visible, collect data and boost processes and initiatives addressing Open Education. Networks of this kind could build on and strengthen international initiatives such as the Open Policy Network, localising efforts and entering into more direct dialogue with partners.
2. Engage higher education stakeholders – government entities for education administration and financing, HEIs, teacher groups and unions, research groups, student movements, etc. – by undertaking academic research that demonstrates what is needed to develop open policies within HEIs, implement support networks, and create synergies for the development and implementation of OER and Open Access.
3. Articulate public expenditure indicators and make requisite data openly available in order to evaluate the impact of public expenditure on educational, academic and scientific production. This will help to facilitate the evaluation of investment and dissemination policies regulating access to affordable and good-quality learning and research materials.
4. Promote open policies and mandates in public-funded calls for projects on STI, so that their outputs are shared on an Open Access and OER basis.
5. Designate bottom-up mobilisation strategies with the aim of establishing the need to include a discussion on Open Education in the public agenda. These strategies could be associated with international initiatives such as Open Access Week,[46] Open Education Week[47] and the Open Government Partnership,[48] which articulates stakeholder relationships and has oversight mechanisms for civil society.
6. Articulate a strategy to promote top-down policies where local stakeholders can collaborate on the agenda promoted by local civil society groups and LA Referencia management in order to understand local commitments and develop action plans to promote LA Referencia.
7. Develop a visibility and communication strategy for existing initiatives in the region through education forums in which different stakeholders showcase their Open Education projects. In this context, opportunities would be created for sharing lessons learned, challenges and success stories of local Open Education initiatives with a large number of educational institutions, government entities and teachers.
8. Undertake economic studies in the region to provide insight into the economic benefits of using OER and implementing Open Access practice.

These recommendations present possible pathways for providing equitable access to affordable and locally relevant research, teaching and learning resources.

45 During Phase 1 of this study, the existence of a few civil society organisations working on the issue was identified, which is a starting point to promote a Latin American network.
46 http://openaccessweek.org/
47 http://www.openeducationweek.org/
48 http://www.opengovpartnership.org/

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References

Amiel, T. (2012). Educação aberta: configurando ambientes, práticas e recursos educacionais. In B. Santana, C. Rossini & N. L. Pretto (Eds.), *REA: Práticas colaborativas e políticas públicas*. São Paulo: Casa da Cultura Digital. Retrieved from http://aberta.org.br/livrorea/artigos/wp-content/uploads/2012/05/REA-amiel.pdf

Amiel, T. & Santos, K. (2013). Uma análise dos termos de uso de repositórios de recursos educacionais digitais no Brasil. *Trilha Digital*, *1*, 118–133.

Atkins, D. E., Brown, J. S. & Hammond, A. L. (2007). *A review of the Open Educational Resources (OER) movement: Achievements, challenges, and new opportunities*. Menlo Park, CA: The William and Flora Hewlett Foundation. Retrieved from http://cohesion.rice.edu/Conferences/Hewlett/emplibrary/A%20Review%20of%20the%20Open%20Educational%20Resources%20(OER)%20Movement_BlogLink.pdf

Babini, D. (2011). Acceso abierto a la producción científica de América Latina y el Caribe. Identificación de principales instituciones para estrategias de integración regional. *Revista CTS*, *6(17)*, 31–56. Retrieved from http://eprints.rclis.org/15574/1/babini_EDITADO_FINAL.pdf

Beltrán Delgado, A. & Lehmann Preisler, P. (2014). UACh construirá Recursos Educativos Abiertos en Salud a través del Fondo de Innovación Académica. *Noticias UACh*. Retrieved from https://protect-za.mimecast.com/s/19b5BnH45noGuM, http://noticias.uach.cl/principal.php?pag=noticia-externo&cod=77936

Centro de Estudios Consorcio de Universidades del Estado de Chile. (2014). *Análisis Ley de Presupuesto de educación Superior*. Santiago, Chile: Centro de Estudios. Retrieved from http://uestatales.cl/cue/sites/default/files/documentacion/Análisis%20Ley%20de%20Presupuesto%20Educación%20Superior%202015.pdf

Centro de Innovación Educativa. (n.d.). *Colombia avanza con la implementación de los Centros de Innovación Educativa.* Bogotá, Colombia: Actualidad. Retrieved from http://www.colombiaaprende.edu.co/html/micrositios/1752/w3-article-337962.html

Collazo, M. & Pebé, P. (2004). *Sistema Nacional de Educación Superior de la República Oriental del Uruguay*. Montevideo, Uruguay: Proyecto Tuning – América Latina 2004–2005. Retrieved from http://tuning.unideusto.org/tuningal/images/stories/presentaciones/uruguay_doc.pdf

CONICYT (Consejo Nacional de Ciencia y Tecnología). (2014). *Memoria de Gestión 2010-2013*. Santiago, Chile: Comisión Nacional de Investigación Científica y Tecnológica. Retrieved from http://www.conicyt.cl/wp-content/uploads/2012/07/MEMORIA-CONICYT-2010-2013.pdf

Contrera, C. (2008). La educación superior en Uruguay. *Revista da Avaliação da Educação Superior, 13(2)*, 533–554. Retrieved from http://www.SciELO.br/pdf/aval/v13n2/13.pdf

Dos Santos, A. I. (2011). *Open Educational Resources in Brazil: State-of-the-art, challenges and prospects for development and innovation*. Paris: UNESCO Institute for Information Technologies in Education. Retrieved from https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/3214695.pdf

Espinoza, O. (2012). *Fortalezas y debilidades del sistema educacional chileno: una mirada crítica*. Santiago, Chile: Centro de Investigación en Educación. Retrieved from http://www.cie-ucinf.cl/download/position_papers_del_cie/EI%20Sistema%20Educacional%20Chileno%20Una%20Mirada%20Critica%20Final%20OE.pdf

Frango, S. I., Ochoa, X., Pérez Casas, A. & Rodés, V. (2013). *Percepciones, actitudes y prácticas respecto a los libros de texto, digitales y en formatos abiertos por parte de estudiantes de universidades de América Latina*. Ecuador: LATin Project. Retrieved from http://www.br-ie.org/pub/index.php/wcbie/article/download/1893/1656

Inamorato, A., Cobo, C. & Costa, C. (2012). *Open Educational Resources: Cases from European and Latin American higher education*. Oxford: Proyecto OportUnidad. Retrieved from http://www.oportunidadproject.eu/COMPENDIO_REA_TRILINGUE.pdf

Ministerio de Educación. (n.d.). *Financiamiento institucional*. Santiago, Chile: Ministerio de Educación. Retrieved from http://www.mecesup.cl/index2.php?id_seccion=4963&id_portal=59&id_contenido=28082

Ministerio de Educación. (2014). *Panorama de la Educación 2014*. Montevideo, Uruguay: Ministerio de Educación de Uruguay. Retrieved from http://www.mec.gub.uy/innovaportal/file/11078/1/mec-panorama-educacion-2014.pdf

Ministerio de Educación Nacional. (2010). *Financiación de la educación superior*. Bogotá, Colombia: Ministerio de Educación Nacional. Retrieved from http://www.mineducacion.gov.co/1621/w3-article-235797.html

Ministerio de Educación Nacional. (2012). *Estrategia Nacional de Recursos Educativos Digitales Abiertos*. Bogotá, Colombia: Graficando Servicios Integrados. Retrieved from http://www.colombiaaprende.edu.co/html/home/1592/articles-313597_reda.pdf

Ministerio de Educación Nacional. (2013). *Resolution No. 6138*. Santiago, Chile: Ministerio de Educación. Retrieved from http://www.mineduc.cl/usuarios/MECESUP/File/2013/convocatoria2013/rex6138_bases-CDPM.pdf

Ministerio de Educación Nacional. (2014). *Estadísticas de educación superior*. Bogotá, Colombia: Ministerio de Educación Nacional. Retrieved from http://www.mineducacion.gov.co/sistemasdeinformacion/1735/articles-212350_Estadisticas_de_Educacion_Superior_.pdf

Ministerio de Educación Nacional (2015). Colombia, un país que avanza hacia el mejoramiento de las oportunidades de acceso a educación superior. *Boletín educación superior en cifras, 5*. Retrieved from http://www.mineducacion.gov.co/1759/articles-350451_recurso_4.pdf

OECD (Organisation for Economic Cooperation and Development). (2014). *PISA 2012 results in focus. What 15-year-olds know and what they can do with what they know*. Paris: OECD. Retrieved from http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf

Republica Oriental del Uruguay. (2012). *Ley No. 19.043: Universidad Technológica Creación*. Montevideo, Uruguay: Republica Oriental del Uruguay. Retrieved from https://legislativo.parlamento.gub.uy/temporales/leytemp6682891.htm

Rodríguez Ponce, E. (2012). La educación superior en Chile y el rol del mercado: ¿culpable o inocente? Ingeniare. *Revista chilena de Ingeniería*, *20(1)*, 126–135. Retrieved from http://dx.doi.org/10.4067/S0718-33052012000100013

Rossini, C. (2012). Brazilian policy on digital inclusion and access to digital creative contents. *Global Congress on Open Educational Resources*, *2012*, 1–15. Retrieved from https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/Position%20paper%20ingl%C3%AAs%20(1).pdf

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