Latin American science is meant to be open access: Initiatives and current challenges

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Abstract

Latin American open access (OA) initiatives were built upon the foundations laid by the regional cooperative information networks, databases and indexes that started to be developed from the 1970s. OA had an early start in the region in the 1990s, because it preceded the first worldwide OA declaration. This article summarizes the reasons behind the emergence of OA in the region, offers details and data about the most relevant initiatives and discusses some of the current challenges to keep advancing in this arena.

Keywords: open access, scientific communication, repositories, scholarly communications, Latin America

Introduction

The development of open access (OA) initiatives in Latin America emerges due to several reasons, which we can classify as financial, relative to libraries, technological, visibility limitations, and the work of the region's pioneers.

The financial reasons are directly related with the costs of scientific publications regarding their production, access, and, in the case of print publications, the delivery costs to their subscribers and to libraries.

The reasons related to libraries have to do with their enthusiasm toward OA, mainly due to challenges that have yet to be met regarding subscription costs to print journals and digital academic databases from the commercial publishing circuit and also with interlibrary loan between the region's cities and countries, which has been limited or almost non-existent due to postal costs.

Another reason behind OA's emergence in the region has to do with the limited visibility of the local, national and regional intellectual production in the traditional international indexes, Web of Science (WoS) and Scopus, which only reflect a minimum part of that production. Also concerning visibility is the traditional print-run for academic documents in the region: on average, no more than 300 copies for journals and 500 for academic books (Babini, 2006).

Technological implications enormously facilitated the development of OA, as we harnessed the opportunities of the Internet, the Web and open source software for repositories and for journal publishing; mainly the Open Journal Systems (OJS), which is used by 1,939 journals of the region (Public Knowledge Project, 2013).

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Finally, the work of the region's pioneers, including initiatives such as the databases CLASE in 1975, PERIÓDICA in 1978 and Latindex in 1995, which were all developed by the Universidad Nacional Autónoma de México (UNAM). These initiatives were developed to provide information about journals from the region and were a strong incentive for other regional initiatives, which were conceived to provide OA to full texts, such as CLACSO, SciELO, Redalyc and LAREFERENCIA. These latter initiatives are all managed by the scholarly community with public funds, making it possible to overcome many of the afore-mentioned restrictions to access to research outputs from the region. For instance, limited visibility was rapidly and drastically improved by the abovementioned OA initiatives, which, together receive millions of downloads each month.

The development of open access initiatives in Latin America

The historical context for the first regional OA initiatives was characterized by access to scientific information through a tradition of regional information systems (Akhtar, 1990), which had national contributing nodes. Notable examples, apart from those already cited, are: Brazil's Virtual Library of Health in 1998; the Network of Virtual Libraries of the Latin American Council of Social Sciences (CLACSO) since 1998 for the social sciences; and the Alliance of Agricultural Information Services (SIDALC), created in 1999 to offer agricultural, livestock, forestry and environmental information. These initiatives are important because they grounded the main ideas behind the Scientific Electronic Library Online (SciELO), started in 1997, which is based in Brazil and works with a cooperative system of national nodes, has had an original development and achieved notable results at an international level. Then there is the Latin America, the Caribbean, Spain and Portugal Scientific Journals Network (Redalyc), based in Mexico and established in 2003. The Salvador de Bahía declaration on OA, signed at a regional SciELO event in 2005, set an important precedent that is not usually mentioned among other OA declarations as it should be (International Seminar on Open Access, 2006). It is noteworthy that almost all the previously mentioned regional initiatives that laid the foundations for the development of OA in the region preceded the first worldwide declarations: Budapest in 2002, Berlin in 2003 and Bethesda in 2003. In consequence, we can state that we had early and widespread adoption of OA in the region. The initiatives SciELO and Redalyc are mandatory references regarding OA in the region, as they index quality journals of the region and offer indicators for evaluating the impact of these publications and of the researchers that publish in them. Together and without duplication, they index more than 1300 journals of the region and provide OA to the full text of these peer-reviewed journals. We must also mention the university portals of journals that are managed through the open source software OJS, to add them to this general picture. The most recent initiative in the region regarding OA is the Federated Network of Institutional Repositories of Scientific Publications (LA REFERENCIA) (Cabezas, 2015), which was established in 2012 and is the interoperable network of national repositories systems, including nine countries of the region to date: Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Mexico, Peru and Venezuela. This initiative has so far harvested more than 800,000 full text documents from national members in Latin America (LA REFERENCIA, 2015). LA REFERENCIA, like OpenAIRE in Europe and the Shared Access Research Ecosystem (SHARE) in North America, is a regional initiative that seeks to encompass the repositories of a region and make them interoperable, with a general search engine. All these regional initiatives are members of the Confederation of Open Access Repositories (COAR), which seeks to advance the alignment of national repository networks (Shearer, 2014).

Current challenges

The current challenges for regional OA include achieving interoperability between the three main initiatives, LA REFERENCIA, SciELO and Redalyc. This interoperability must also include the disciplinary repositories in the region; it is also necessary that the main universities develop their institutional repositories, if they do not yet have them (Babini, 2012). The topic of institutional repositories is a recent development in the region. To reinforce institutional repositories, it would be useful if institutional OA policies, that are generally only recommendations, are turned into mandates, demanding that deposit or self-archiving be a requirement, to be considered at the time of academic evaluation, promotion and tenure. We already have the first national legislations that mandate the development of national repositories, which will allow more important developments in this area. To date, such legislation has been approved in Peru and Argentina in 2013, and in Mexico in 2014; similar legal frameworks are being discussed in Brazil and Venezuela.

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Research about OA in the region has recently received support from the International Development Research Centre (IDRC) in Canada to allow researchers from the region to advance in a better understanding and description of the particularities of Latin American OA (Alperin and Fischman, 2015).

The topic of OA impact indicators in the region requires further examination, study and more exhaustive development; there are good opportunities to analyze the inclusion of the OA indicators produced by SciELO, Redalyc and repositories in general in research evaluation systems, thus complementing the traditional Web of Science and Scopus indicators. In fact, there have been relevant advances in the study of OA indicators from the particular case of the region and its current main initiatives such as SciELO, Redalyc and CLACSO, which have received support from UNESCO to improve the online visibility and description of their indicators, (Alperin, Babini and Fischman, 2014). A recent study about SciELO indicators demonstrated the public impact of the Latin American approach to OA (Alperin, 2015); so it is a topic that is starting to grow but requires further research and reporting. Additionally, Google Scholar is facilitating the data of the citations received by works available in OA. In 2014, SciELO started to operate the SciELO Citation Index (SCI) in the WoS platform, which will allow conducting citation analyses in this universe of journals that are indexed by SciELO (Packer, 2014). Recently, Redalyc has started to collect reports by country and institution with indicators of scientific production and scientometric indicators (Redalyc, 2015).

There are several numbers that can be gathered and that communicate the development of OA in the region: number of journal titles, of regional OA mandates, and the list of repositories and the estimation of records they contain. Regarding the number of journal titles, Latindex (2014) indicates that in its Directory there are 18,612 titles from the region, 6,545 in its Catalog (which contains titles that comply with quality criteria designed by Latindex, mainly peer-review) and 5,298 from the Directory with OA to their full texts. Moreover, the Registry of Open Access Repository Mandates and Policies (ROARMAP, 2015) registers the number of OA mandates worldwide, of which there are 37 in the region, distributed in the following way: Brazil (16), Peru (6), Argentina (4), Venezuela (4), Colombia (3), Mexico (3), and Bolivia (1). In general, these mandates are institutional policies that recommend rather than mandate OA; unlike the national legislations from Peru and Argentina, which were previously mentioned, that require the results of research funded with public funds to be available in OA repositories. In the case of the Mexican national legislation, the deposit is voluntary. International studies have shown that OA policies can be more successful when these policies are mandatory (Swan, Gargouri, Hunt and Harnad, 2015). Regarding the total number of repositories, we can see in the numbers a good testimony of the development of OA in the region, which can be gathered from the Open Directory of Open Access Repositories (OpenDOAR, 2015). From this source we can gather detailed data about our repositories, which are a total of 309 repositories from 21 countries (without counting Redalyc and LA REFERENCIA, as will be explained below). Table 1, which was constructed from data extracted exclusively from OpenDOAR (2015), ranks the countries of the region that have repositories by their numbers; these numbers do not include Redalyc and LA REFERENCIA, because OpenDOAR counts them as repositories from Mexico and Argentina, respectively, which is incorrect. However, these numbers do include SciELO's national nodes, which are appropriately registered by OpenDOAR. Moreover, with data from OpenDOAR (2015), we can make an estimation of the records contained the repositories of the region, which are a total of 3,882,830 records. However, these numbers must be examined more closely in order to detect duplication and to determine the number of records without full texts. This total number of records is mainly due to the collections of digital theses from Brazil-IBICT (267,864), the full text articles from Iberoamerican journals in the regional repositories SciELO (564,343) and Redalyc (401,375), and the regional harvest of national repositories systems LA REFERENCIA (800,000).

Table 1. Number of repositories in Latin America. Data extracted from OpenDOAR (2015).

COUNTRY	NUMBER OF REPOSITORIES
Brazil	86
Argentina	34
Mexico	26
Venezuela	16
Colombia	38
Chile	19
Ecuador	25
Uruguay	3
Peru	29
Costa Rica	6
Trinidad and Tobago	1
Guadeloupe	1
El Salvador	6
Cuba	6
Jamaica	3
Honduras	2
Bolivia	2
Nicaragua	1
Dominican Republic	3
Puerto Rico	1
Paraguay	1
Total	309

There are also financial considerations for the region that must be regarded, because two-thirds of the research and its communication in journals is funded with public funds (UNESCO, 2010). Latin America has not outsourced the production of journals to the commercial sector, unlike Europe and the United States, where commercial publishers are now promoting the business model of article processing charges (APC) to publish in OA, also known as hybrid gold OA. In consequence, there is the risk that the commercial OA model of the North will also be promoted and adopted in our region (Babini, 2014). We consider that this business model is a risk, because it would bring financial difficulties to the researchers, their research project budgets, and their institutions needing to publish in OA journals and that cannot afford APCs at the market values of the North, or because the only ones with access to publishing are those with the capacity of having or obtaining the funds to publish under this model. These costs could end up increasing the cost of research and in general would financially undermine the whole regional research and scientific publishing ecosystem, which is managed today by the scholarly community with public funds. Furthermore, a payment model for OA would undermine scientific communication in the global South, which would be obviously detrimental for Latin American science. In fact, we could say that the Latin American flavor of OA lies in the fact that scientific and academic journals are published by universities, research institutes and other scientific and academic organizations (Murtinho, 2014) without being outsourced to commercial publishers which charge APCs to publish in OA. Hence, it has been a regional tradition not to charge for publishing, a tendency we hope will continue. However, OA financial implications have different ramifications. Lau (2015) argues that OA sends a clear message to large publishers that are charging high fees for the subscriptions to academic journals, but at the same time this could harm small publishers; so it may be pertinent to consider alternative funding models for the regional OA ecosystem.

The promotion of OA represents a challenge, because its main supporters are from the community of librarians that share information online in mailing lists such as the Latin American List of Open Access (LLARR) and its Facebook page, which has more than 1000 followers. Moreover, there are annual events such as the International Conference on Digital Libraries and Repositories (BIREDIAL), which is a space for exchanging experiences among OA initiatives; there are also initiatives such as those from CLACSO, with its OA Campaign in support of the Open Access Movement and noncommercial OA, having signed the Berlin Declaration in 2003, the San Francisco Declaration in 2012, and organizing and participating in OA events at a regional and international level (CLACSO, 2014). However, there is the need for a larger presence of OA advocacy activities within scientific and academic events, in order to reach the researchers, as the academic and scientific world must incorporate OA practices among their activities in a more intensive way.

There is a specific challenge for researchers located in institutions without a repository and for the independent researchers wishing to archive their production in OA, whether directly or by depositing in repositories preprints of their publications in commercial journals, if they are allowed to by license agreements with publishers. These researchers usually archive their production in regional disciplinary repositories, such as those mentioned here, and/or in international repositories, if they exist in their fields; examples of these include Eprints in Library & Information Science (e-LiS); the Social Science Research Network (SSRN) for the social sciences, and arXiv for the fields of physics mathematics, computer science, quantitative biology, quantitative finance and statistics. In the medium-term, we should expect national repositories to offer the option of deposit for these authors that do not have a repository in their institution or are not affiliated to an institution. However, this requires the development of a system for the quality control of the documents being deposited, as well as appropriate policies and legal frameworks.

In general, to continue moving the region forward regarding OA, it is necessary to establish policies, promote best practices, train stakeholders, invest in infrastructure, and change the scientific evaluation systems so as to value the national and regional research output being published in regional and national OA quality journals. We must take into consideration that “crafting a science policy for Latin America (or for any ‘peripheral’ region of the world) must, therefore, pay a good deal of attention to the mechanisms underpinning the production of these journals’’ (Vessuri, Guédon and Cetto, 2014: 649). Furthermore and undoubtedly, we should ensure that the cultural changes needed for all innovation will occur.

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