Open Access and Scholarly Publishing in Latin America: Ten flavours and a few reflections

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Abstract Throughout this article we argue that many scholars and scientific systems in Latin America and the Caribbean (LAC) share the ethical and epistemological motivations about the importance of increasing the "public presence" of academic research and lay out that many scholars and that many scholars and scientific systems in LAC are well positioned to take advantage of the increasing information and communication technology (ICT) infrastructure and of the growing open access (OA) movement so that the research produced within the region is circulated and shared broadly. The existence of Latin American examples to Willinsky's (2006) ten flavours of OA to journal articles are seen as an indication that OA has taken hold in the region.

Keywords Open Access (OA); Latin America and the Caribbean; Information and Communication Technologies (ICT); knowledge dissemination; Scholarly Communication

Resumo Argumenta-se neste artigo que muitos acadêmicos e sistemas científicos na América Latina e no Caribe compartilham motivações éticas e epistemológicas a respeito da importância de se aumentar a "presença pública" da pesquisa acadêmica e que muitos deles estão bem-posicionados para se valer da crescente infra-estrutura de tecnologias de informação e comunicação (TIC)e dos movimentos de Acesso Livre (AL) para que a ciência produzida na região circule e se compartilhe amplamente. A existência de exemplos latino-americanos para a classificação dos dez modelos de Willinsky para artigos de periódicos é vista como indicação de que o AL já se instalou na região.

Palavras-chave Acesso Livre (AL); América Latina e Caribe; Tecnologias de Informação e Comunicação (TIC); difusão do conhecimento; comunicação acadêmica

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Introduction

Most scholars and academics, will undoubtedly agree that their main mission is to produce new knowledge through research activities. In many cases, however, the motivations for engaging in a given research project relate as much from the belief that the knowledge generated will be of scientific interest and also about its social implications and possible contribution to the advancement of the public good. Good intentions aside, it is also clear that many scholars have not paid enough attention to ensure that their research results were available to the public.

The motivations for ensuring a wide dissemination of research are many and varied, but we want to highlight two key aspects. Scientific endeavours cannot be detached from ethical and political considerations. We firmly believe that knowledge generated through publicly sponsored research should benefit the public, thus, scholars should place adequate care in ensuring that the "public" has access to what was produced with public support. At the same time, there is an epistemological motivation to place the research in a widely accessible form. That is, only research that has been publicly scrutinized (including but not limited to traditional processes of peer-review) can claim that the knowledge produced is accurate and meets the standards of the academic community, and therefore it legitimately adds to the global network of knowledge[1]. In sum, we share the position of Lucas and Willinsky (2008; p.1), that "the responsibilities of the researcher extend beyond the design, conduct, and supervision of research" and go into the way in which research is circulated and shared.

Throughout this paper, we will argue two main points. Firstly, that many scholars and scientific systems in Latin America and the Caribbean share the ethical and epistemological motivations about the importance of increasing the "public presence" of academic research; Secondly, many scholars and scientific systems in Latin America and the Caribbean are well positioned to take advantage of the increasing information and communication technology (ICT) infrastructure and of the growing open access (OA) movement so that the research produced within the region is circulated and shared broadly. Furthermore, it is the aim of this paper to show that Latin American researchers have already made large progress in this process. It is our hope that by showing the ways in which researchers in Latin America have already started to disseminate their research more widely, other researchers in the region will be encouraged to do so.

This paper is therefore divided into four main sections. The first gives a general background of the changes in the ICT infrastructure and use in Latin America in order to give the reader a sense of the physical infrastructure that can aide a greater knowledge exchange. This then leads into a discussion on the patterns of dissemination of research within the region. Through this discussion, open access is identified as one of the methods being used by journals in Latin America and the meaning and extent of open access is therefore discussed in the third section. Finally, the last section uses Willinsky's (2006) classification of open access models to show how almost all versions of OA can already be found in Latin America.

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[1] These arguments are laid out in more detail in Willinsky, 2006; Lucas & Willinsky

ICTs' General Infrastructure in Latin America

While Internet usage worldwide has grown at an estimated rate of 275.4% between 2000 and 2008 worldwide, Latin American's growth is estimated at over twice this amount (603.4%) (Nielsen/NetRatings, Retrieved May 3rd, 2008). This growth follows another period in which the region was considered a "hot spot for the telecommunications business" (Fernández-Maldonado, 2001; p2.). Although the overall penetration is still low (22.1% of the population, Nielsen/NetRatings, Retrieved May 3rd, 2008), there are those that are hopeful that it is possible to "enable affordable, accessible Internet connectivity and computing capabilities for 50% of the world's population by the year 2015" (AMD, 2008). This type of growth opens up a world of opportunities for information and knowledge exchange to take place.

Despite this growth in Internet usage, the actual levels of ICT development have been weaker than in other parts of the world. Since the middle of the 1990s, most countries in Latin America have increased the number of telephones and telephone connections, Internet access, the number of computers in homes and schools, and the number of cyber cafés. However, development has not been homogeneous across countries, regional areas, or social classes, and the lack of trustworthy studies is a major deficiency, complicating any analysis in this area. Moreover, as Hilbert and Katz (2003), authors of an influential ECLAC report on these issues, noted, "the lack of *information* about the development of an *Information Society* in Latin America and the Caribbean is a major obstacle in itself." (p. 289). Tables 1 and 2 show the huge disparities among countries and regions in terms of ICT infrastructure, and also the differences in the rate and speed of the incorporation of personal computers, telephone lines, and Internet hosts, all deemed crucial components for bridging the digital divide.

HDI rank *	Country*	Internet users (per 100 people**)	PCs (per 100 people**)	Telephone lines (per 1000 people*)		Mobile phones (per 1000 people*)		Internet hosts (per 1000 people*)	
		2002	2002	1990	1999	1990	1999	1995	2000
1	Norway	30.72	52.83	503	712	46	617	20.1	193.6
6	USA	50.10	62.44	545	682	21	312	21.1	179.1
34	Argentina	10.93	8	93	201	0	121	0.2	8.7
41	Costa Rica	20.29	20.32	101	204	0	35	0.6	4.1
51	Mexico	10.69	8.30	65	112	1	79	0.2	9.2
69	Brazil	8.22	7.48	65	149	0	89	0.2	7.2

Table 1: ICT Infrastructure in selected countries

Sources: Human Development Report 2001 - http://hdr.undp.org/reports/global/2001/en/pdf/techindex.pdf
International Telecommunication Union - http://www.itu.int/ITUD/ict/statistics/at_glance/Internet02.pdf

Region	Telephone lines (per 1000 people)		Mobile phones (per 1000 people)		Internet hosts (per 1000 people)	
	1990	1999	1990	1999	1995	2000
Middle income countries	22	69		34	0.1	1.0
High income countries	473	594	13	371	11.0	96.9

Table 2: ICT Infrastructure in Middle Income and High Income regions

Another relevant measure in relation to technological development is provided by the *Networked Readiness Index Ranking (NRIR).* The Networked Readiness Index (NRI) is defined as a nation's or community's degree of preparation to participate in and benefit from ICT developments. The NRI is a composite of three components: the environment for ICT offered by a given country or community, the readiness of the community's key stakeholders (individuals, businesses, and governments) to use ICT, and finally, the usage of ICT among these stakeholders (Dutta & Jain, 2004, pp. 3-4).

Table 3 shows that in the *Networked Readiness Index Ranking (NRIR)* from 2002 to 2005, Argentina dropped in the ranking from position 45 to 76; Mexico from 47 to 60; Costa Rica from 49 to 61; and Ecuador from 75 to 95.

Country	2002-2003	2003-2004	2004-2005
Brazil	29	39	46
Chile	35	32	35
Argentina	45	50	76
México	47	44	60
Costa Rica	49	49	61
Uruguay	55	54	64
Republic Dom.	57	57	78
Trinidad & Tobago	58	52	59
Colombia	59	60	66
Jamaica	60	53	49
Panama	61	58	69
El Salvador	63	62	70
Venezuela	66	72	84
Peru	67	70	90
Guatemala	73	86	88
Ecuador	75	89	95
Paraguay	76	91	98
Bolivia	78	90	99
Nicaragua	79	94	103
Honduras	81	98	97
Haiti	82	100	

Table 3: Networked Readiness Index (NRI) Rankings for Latin American Countries 2002- 2005

Source: Networked Readiness Index 2002-2003, 2003-2004, and 2004-2005.

The previous information confirms that growing investments in the areas of ICTs and networking in Latin America are one of the most noticeable changes of the last decade, as well as the need to improve the sustainability of the ICTs programs to consolidate the gains made during the previous decades. Our position is that one element in that sustainability is an increased demonstration of the value of this technology through, for example, the development and delivery of high quality knowledge, and in particular the research and scholarship associated with post-secondary institutions and research institutes. That is, the investment at all levels in

these technologies will follow, to at least some degree, a sense of their contribution to the public good.

Dissemination of scientific knowledge in Latin America

The expansion of ICTs in the region has allowed many more scientists to access to information at affordable prices as well as to encourage their participation and collaboration in international networks of knowledge production. Traditionally, scientific networks in Latin America have been poorly developed despite the common language, cultural, and to certain extent social and political affinities shared by researchers (Fernández-Maldonado, 2001) and, while it is certainly true that knowledge flows have increased, there are some scholars who fear that the new forms of scientific exchange will only serve to recreate the patterns of social exclusion of the past and a dependence, on the part of the "scientific periphery,"[2] to the knowledge of the centre (Everett, 1998; Arunachalam, 2003, 2006).

One of the many ways in which the region can ensure that it does not fall pray to what Altbach (2004) refers to as the "neo-colonialism of the 21st century" is to ensure that the region's academic impact be felt both regionally and globally. That is, to ensure that the Latin America's presence in scientific and social networks will be substantial in size, visibility, and most importantly, quality. For this to happen, there needs to be a scientific and political effort at strengthening scholarly publishing in the broadest sense. This must be done locally, not be replicating the patterns of the centre, but by identifying the aspects of scholarly communications that are being successful within the region itself. However, building the critical mass necessary for this to happen is no small task and the barriers to publication in the region remain numerous.

As Terra-Figari (2008) points out, countries in the "scientific periphery" are hindered by disadvantages in size, incentives, financing, language, publishing and editing parameters. The worldwide inequalities in these categories tend to reinforce themselves through cycles of weakness. For example, researchers are not encouraged to publish their work in journals that have a limited international audience or not indexed in the "required and/or officially approved lists," and therefore journals with limited international visibility will find it more difficult to attract the most prestigious researchers, be they regional or international, and are thus unable to attract the type of readership required to grow. Further exacerbating the situation are the difficulties for Latin American researchers caused by a lack of funding and limited abilities to consult the leading journals in their field, which challenges their possibilities to conduct cutting-edge high-quality research (Terra-Figari, 2008)

Once again, the importance of ensuring a wide dissemination of research proves to be critical, as this has an impact in the capabilities of the regional research community itself. Similarly, we see the positive feedback effect that dissemination can have on researchers, the institutions that house them, and society at large, as they each benefit from quality and quantity increases in the

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[2] While the terms centre and periphery have been used to denote the developed and developing world, in this paper we will use the definition found in Mariãiç (2002; p.1) which reads: "Most of the world's scientific activities are concentrated in a few countries, which from a global perspective can be defined as the *centre*. Other countries, which for historical, economic, social, cultural reasons represent the smaller share of global scientific activity may be characterized as the *periphery*."

locally relevant research produced.   The increase in quality likewise plays a positive effect on the increased visibility of the work produced in the region, since quality work is more likely to be sought out, but increased dissemination is unlikely to materialize if the appropriate distribution channels are not chosen at the time of publishing.

Many advances have been made in Latin America to provide these channels, perhaps more so than any other region in the world.   This has been mainly achieved through the creation of regional indexing systems that are able to provide access to a large portion of the region's scientific production.   The oldest large-scale example of this is Latindex[3], which was first conceived in 1994 and has been providing free access to a directory of journals from Latin American since 1997 (Latindex, 2008).   The following years saw the creation of Scientific Electronic Library Online[4] (SciELO), first in Brazil and now in thirteen countries.   The more recently created Red de Revistas Cientificas de América Latina y el Caribe[5] (RedALyC) has grown to catch the other two in size, representation, and importance.   Unlike Latindex, which provides only metadata and links to some full-text articles, both SciELO and RedALyC host copies of every article in their databases and provide them to the public for free.

Two key features distinguish both SciELO and RedALyC from large journal portals that can be found in the centre.   The first is that these initiatives are strictly regional and were born as a result of a common need to increase the availability and visibility of regional content for regional and global use.   The second is that both are operating entirely under an Open Access (OA) publishing model.   That is, both provide free and unrestricted access to all of the journals that integrate them.   OA is one of the key ways through which the type of broad dissemination of research that we called at the onset of this paper is possible.   To further explore this, the remainder of this paper is focused on the forms, presence, and significance of OA in Latin America.

Open Access

The Open Access movement has been grabbing attention worldwide in a wide variety of settings. OA itself is not a new concept, but since the early 2000s it has dominated the publishing industry news as well as many academic debates, symposiums, meriting special issues in journals, such as this one. Librarians, publishers, and authors alike have began to consider the implications of this alternative and it would seem that OA publishing, in one of the many forms that will be outlined in this paper, are destined to play an important role in how research is both conducted and disseminated.

The reasons and motivations that have led to this added interest and to the surge in literature available under an OA model are many and varied (cf. Suber, 2007 for a timeline of critical events related to OA).   However, the apparent lack of information and confusion over the meaning of OA in Latin America (Villanueva, 2006; Terra-Figari, 2008) may lead some to believe that OA is a phenomenon concentrated in the "science central countries." However, as

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[3] Latindex – http://www.latindex.org
[4] SciELO – http:/www.scielo.org
[5] RedALyC – http://www.redalyc.org

the following section will present, the situation about OA in Latin America indicates a more complex and shifting situation.

Haider (2005) provides a snapshot of the geographic distribution of OA journals throughout the world. Using Ulrich's Periodicals Directory[6] and the Directory of Open Access Journals[7] (DOAJ), she estimates that while 82% of all journals are concentrated in USA/Canada and Western Europe, these same regions only have 59% of all of the OA journals. It is unsurprising that, in absolute numbers, these regions dominate in both the OA and non-OA realms. However, it may be surprising to some that this stronghold is much less true when it comes to OA journals and it may surprise even more to find that Brazil is the 3rd largest publisher of OA journals in the world, only second to the USA and the UK. Although Brazil's case is certainly particular, largely influenced by the efforts and leadership the Instituto Brasileiro de Informação em Ciência e Tecnologia[8] (IBICT), the region as a whole is far ahead of all others in the world in terms of percentage of OA journals.

The combined efforts of researchers, public and private universities, ministries/councils of science and technology, libraries, and others, has resulted in 13% of all Latin American journals are OA (compared to the 3% in Canada/USA and 2% in Western Europe) (Haider, 2005). This number rises to 51% when looking at the proportion of online journals (Haider, 2005). These numbers should only be taken as a general guide, as they do not take into account the many other forms of OA that exist, such as researchers placing freely available copies of their work on their websites.

In the interest of fairness, it is important to point out that it may be misleading to attempt a comparison between the "science central's" OA production and that of the scientific periphery. While this same ethical principles for providing open access hold everywhere, and are indeed shared by many in the periphery, the perceptions of OA is bound to be different in those places that have most suffered the consequences of limited access. The primary ethical concern found in the centre is to provide access to two main groups on the fringes of the scientific community: the "public" and those researchers and institutions who cannot afford to purchase subscriptions (Haider, 2007). Latin American institutions often fall into this latter category.

Thus, the motivations for OA in Latin America have been quite different than in the centre and have lead to a wide adoption of OA, even though OA as a movement has not been as clearly contemplated, formulated, or planned. While in Europe, USA, and Canada, OA has been driven in part by a rise in prices and a rise in the quantity of journals (the so-called "serials crisis"), publications in Latin America have traditionally been free, or close enough to free (Terra-Figari, 2008). As ICTs started becoming more widespread in the region, the move to electronic form simply meant that the already free distribution could reach an even greater number of people. The lack of a strong publishing industry in Latin America has allowed online publishing initiatives to flourish (Holdom, 2005), while in Europe and the USA-Canada the business of publishing is often too lucrative to forgo (de Sagastizábal et al., 2006).

One of the outcomes of the increased attention to OA is that a lot of helpful (some would say necessary) tools and mechanisms for publishing have been created and are at the disposition of everyone. For example, there are open source software platforms for institutional repositories

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[6] Ulrich – http://www.ulrichsweb.com/
[7] DOAJ – http://www.doaj.org
[8] IBICT – http://www.ibict.br

(e.g., MIT's DSpace[9]) and for journal management and publishing (e.g., PKP's OJS[10]), as well as a legal infrastructure (e.g., with Creative Commons[11]) that have all facilitated the transition to and creation of OA content throughout the world, including Latin America. Likewise, groups like SciELO and RedALyC are skillfully taking advantage of software developments to promote the journals of Latin American community.

It is important to note that discussion regarding broad dissemination of scientific knowledge can be achieved in a wide variety of forms, and not limited to academic journals. To illustrate this point we will outline Willinsky's (2006) ten different 'flavours' or models of OA. These "flavours" present different approaches and likely strategies that could contribute to achieve the type of broad dissemination that we are arguing is crucial for the success of Latin America as a knowledge producing region.

Ten Flavours of Open Access in Latin America

Willinsky himself points out that some of these flavours contravene some of the rules laid out in some of the more formal definitions of OA (e.g., "Budapest Open Archives Initiative", 2002; "Bethesda Statement" 2003), and should perhaps be thought of as means of increasing access to research and scholarship. That is, all of the forms of OA publishing and archiving described below provide better access than traditional scholarly publishing models. These descriptions are based on the Willinsky (2006) and are enriched with examples from Latin America.

1.   Homepage open access: One of the first places that researchers began to make their work freely available on the Internet was in their personal homepages or on pages provided by their university. Many examples of this type of access can be found, such as the on the home page of Facultad de Informática de la Universidad de La Plata, Argentina. Home page open access differs from institutional repositories and e-Print servers in that the later provide a global indexing system.

2.   Open access e-print archive: Many journals now permit authors to place a copy of their work, prior to publishing or after, in open access e-print archives or institutional repositories. An e-print archive can be organized around a discipline, as is the case for the social sciences through the Consejo Latinoamericano de Ciencias Sociales (CLACSO) digital library or by a specific institution, as is the case for the Universidad Nacional de Colombia. Open source software is available for setting up e-print archives that can index the contents following the standards set by the Open Archives Initiative. For example, the institutional repository for the Universidad Nacional de Colombia uses MIT's DSpace software.

3.   Author fee open access: A very prominent form of open access, found especially in the medical sciences, is based on charging authors fees ranging between $500 and $3,000 per published article. The leading corporate open access publisher, BioMed Central, uses authors fees with its almost 200 titles. These fees can be covered by the author through research grants or with department funding or, in some cases, through the purchase of institutional or national

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[9] DSpace – http://www.dspace.org
[10] OJS – http://pkp.sfu.ca/ojs
[11] Creative Commons – http://www.creativecommons.org

memberships to the journals. Currently, this model is not being widely applied in Latin America, although the possibility certainly exits for journals to adopt this economic model. One example is the Revista Latinoamericana de Psicología which insists that authors subscribe to the open access publication ($60 for individuals and $120 for institutions) in order to publisher their articles.

4.   *Subsidized open access:* Perhaps the most common form of open access in Latin America is the use of various subsidies that journals are able to receive from scholarly societies, university departments, government agencies, or foundations. This form of open access does not typically charge any fees to authors or readers and is often run on largely volunteer efforts or with some type of non-monetary remuneration offered by universities. Among the many examples of this type of journal is the Costa Rican journal, Población y Salud en Mesoamérica.

5.   *Dual-mode open access:* Some journals have preferred to maintain a print publication despite their interest in switching to being open access. Many of these journals have started publishing an online open-access version that is available immediately and have maintained a traditional subscription model to offset the costs of a print version of the publication. This type of access can be seen in the Revista Argentina de Microbiología who charge $50 to Argentinians, $80 to Latin Americans, and $100 for other countries for a print version of the journal and provide free access through their webpage, SciELO, and RedALyC.

6.   *Delayed Open Access:* One of the two modes of open access that are intended to encourage the purchase of subscriptions, while still providing open access, is to provide open access to content only after a number of months have passed since the original publication. Journals can sell print and online subscriptions for those readers that want access to articles immediately and provide free access to those that are willing to wait. The journals at the Colegio de Mexico all follow this model.

7.   *Partial open access:* Another approach to attracting subscriptions while still providing some open access is to provide open access to only some of the contents of the journal while restricting the rest to subscribed users. This type of access helps increase the visibility of a journal through its open access content and encourages readers to purchase subscriptions of other articles they have seen while browsing the journal. No Latin American examples of this type of access were found, but it is another possibility for those journals worried about losing the income generated from providing free access.

8.   *Per capita open access:* Programs such as the World Health Organization's HINARI project has provided access to over 2,000 medical journals to those countries that have a per capita income of less than $1,250. With HINARI, countries with per capita income of $1,250-$3,500 pay $1,000 per institution per year for access to the same journals. In Latin America, Bolivia, Guayana, Haiti, Honduras, Nicaragua, and Paraguay all qualify for free access and Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Peru, and Suriname qualify for the discounted price.

9.   *Open access indexing:* Open access indexing has become a terrific source for finding publications that would otherwise only be found through commercial databases. While articles themselves may not be open source, there are many indexes that are providing access to article metadata so that researchers can at least know of article's existence. One such example is OA-Hermes, based out of the Universidad Nacional Autonoma de Mexico (UNAM). This open access index provides a unified search engine for a wide variety of sources from both Latin

America and elsewhere, including SciELO, RedALyC, and the UNAM itself.

10.   *Open access cooperative:* The final form of open access presented by Willinsky (2006) is the cooperative, which can form among publishers, such as scholarly societies, or among publishers and libraries, as they work together to ensure the most efficient form of knowledge dissemination. This type of access is one that is perhaps best exemplified in Latin America with the SciELO project. SciELO works through the implementation of a common model and methodology in all the member countries. In each country, SciELO works with partners who collectively benefit from each other's efforts.

Type of open access	Economic models	Journal or portal example
Home page	University department maintains home pages for individual faculty members on which they place their papers and make them freely available.	Pontificia Universidad Católica de Chile – Matemática http://www.mat.puc.cl/publicaciones/
E-print archive	An institution or academic subject area underwrites the hosting and maintenance of repository software, enabling members to self-archive published and unpublished materials.	Universidad Nacional de Colombia http://www.digital.unal.edu.co/dspace/
Author fee	Author fees support immediate and complete access to open access journals (or, in some cases, to the individual articles for which fees were paid), with institutional and national memberships available to cover author fees.	Revista Latinoamericana de Psicología http://www.rlpsi.org/index2.html
Subsidized	Subsidy from scholarly society, institution and/or government/foundation enables immediate and complete access to open access journal.	Población y Salud en Mesoamérica http://ccp.ucr.ac.cr/revista/index.htm
Dual-mode	Subscriptions are collected for print edition and used to sustain both print edition and online open access edition.	Revista Argentina de Microbiología http://www.aam.org.ar/revistas.php
Delayed	Subscription fees are collected for print edition and immediate access to online edition, with open access provided to content after a period of time (e.g., six to twelve months).	Revistas del Colegio de Mexico http://revistas.colmex.mx/

Partial	Open access is provided to a small selection of articles in each issue — serving as a marketing tool — whereas access to the rest of the issue requires subscription.	
Per capita	Open access is offered to scholars and students in developing countries as a charitable contribution, with expense limited to registering institutions in an access management system.	HINARI http://www.who.int/hinari
Indexing	Open access to bibliographic information and abstracts is provided as a government service or, for publishers, a marketing tool, often with links to pay per view for the full text of articles.	OA Hermes http://oa-hermes.unam.mx/oa-hermes.html
Cooperative	Member institutions (e.g., libraries, scholarly associations) contribute to support of open access journals and development of publishing resources.	SciELO http://www.scielo.org

Table 4. Ten flavours of open access to journal articles

Source: Willinsky (2006)

Conclusion

Throughout this article we have been advancing the idea that the expansion and consolidation of OA, in any of its "flavours" will be of great benefit not only for Latin America's scholars, but also for advancing the well being of the notion of the "public good" at the local and global levels. We consider that scholars, scientist and academics in general should seriously consider to incorporate into their work the *access principle* "a commitment to the value and quality of research carries with it the responsibility to extend the circulation of this work as far as possible, and ideally to all who are interested in it and all who might profit from it" (Willinsky, 2005, p. 5).

We are aware of the differences and inequities in the processes of production, circulation and legitimization of scientific knowledge, and have already recognized our own dissatisfaction with the notions of "central" and "periphery" with regards to academic production. No doubt, OA by itself cannot solve all the issues related to those inequities, and the always-critical issue of scientific excellence, relevance and quality. The combination of online presence and open access is changing the geometry to a degree, as there is more of a global knowledge exchange, a greater

circulation of work, than was taking place with print. For this reason, and with this goal of exchange and circulation in mind, it makes sense for those with an interest in the future of knowledge to continue to look for new ways of using these technologies to advance the quality and reach of this work.

We firmly believe that any research project should be developed including conscious steps to make the circulation and exchange of knowledge as available as "feasible" as possible. Undoubtedly, the feasibility of making all the knowledge produced by a research project "public" will depend on the contextual and institutional limits (e.g., economic and/or educational), but the point to stress is that the introduction of ICTs allows for envisioning an extended concept of what the "public" is. Undoubtedly, the type of distribution of knowledge that Internet affords is beyond what was possible to imagine with print technologies. In this context one of the important tasks is to consider how OA can be applied to improve simultaneously, the scholarly and social value of research-based knowledge.

Finally, we want to highlight that doing research today requires reflecting and engaging with new publishing technologies, such as OA. Researchers throughout the world should consider the ethical implications and scientific potential of making their research publicly available. We can only speculate about this but, it is our understanding and hope that a deeper commitment to forms such as OA demands from researchers other forms of public responsibility and accountability that will result in the strengthening of scientific production as well as a more substantive contribution to the democratization of access to knowledge.

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