

Public Expenditure in Education in Latin America. Recommendations to Serve the Purposes of the Paris Open Educational Resources Declaration

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Abstract

In this paper, the authors identify and analyze public policy and the investment and expenditure that the governments of Argentina, Chile, Colombia, Paraguay and Uruguay commit to make in the development and procurement of textbooks, books and digital content for primary and secondary education (K-12). The aim is to identify and propose a roadmap for developing policies that advance the principles of the Paris Open Educational Resources Declaration. In the region, digital content coexists with and complements the traditional ones. Paper textbooks continue to have a leading role in the education systems of the region. In this context, the authors assess how the acquisition of traditional and digital materials occurs and offer some recommendations to the governments to adjust their public spending policies on educational resources development and procurement.

Keywords: Education; open educational resources; Paris Open Educational Resources Declaration; primary and secondary education; public investment/expenditure; public policy

Introduction

The rapid advancement of technologies that make it extremely easy for people to create and share materials is out of alignment with copyright law, which requires that user ask permission from rightholders to use a work. The development of open licensing and Open Educational Resources (OER) helps address this gap, by changing and questioning the current paradigm.

There are multiple definitions of this concept. The Paris Open Educational Resources Declaration born out of the United Nations Education Science and Culture Organization (UNESCO) in 2012, proposes one of the more recent definitions: “[. . .] open educational resources are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution.”

Perhaps the first clear, high-impact initiative recognized as OER was that of Open Courseware at the Massachusetts Institute of Technology (MIT), described by Johnstone and Poulin in one of the first writings that address the topic explicitly (Johnstone & Poulin, 2002). MIT developed a repository of information related to its courses, which is posted on the Internet for anyone to use and reuse. The publication in 2002 of a set of open licenses created by the Creative Commons Foundation made it easier for the project, which adopted them immediately, to formalize its idea of legal reuse. Since then, a myriad of educational projects have adopted these standards.

Many arguments have been proposed in favor of these resources. It is said that OER improve access to information, increasing opportunities for learning and the application of knowledge to a broader context. They also support formal, self-guided, peer-reviewed learning. Furthermore, these resources allow feedback between agents in a broad network of users (teacher-teacher, student-teacher, etc.). They can even contribute to enhance the reputation and visibility of teachers and

educational institutions. They broaden and diversify the educational curriculum by expanding the exchange of ideas between diverse individuals and communities. Finally, OER contribute to the affordability of education by reducing the production costs of educational materials.

After a decade of existence and development of the OER concept, the Paris Declaration adopts an interesting position. It proposes that the creation of a culture of appropriation and use of these resources depends invariably on the use of incentives that stimulate the adoption of OER standards for publicly funded materials. This posture impels us to examine State public investment and expenditure in the development and procurement of educational materials. Information resulting from such analysis allows us to make recommendations to better align public expenditure with the aims of the Declaration.

This paper presents a short synthesis of a comprehensive report funded by UNESCO and carried out between April and October 2013 (Toledo *et al.*, 2014). It identifies and analyzes investment and expenditure policies reported by governments for developing and procuring school textbooks as well as digital content for primary and secondary school (K-12). This study aims to propose a roadmap for developing policies that advance the objectives of the Paris OER Declaration.

Regarding the scope of this study, it is worth mentioning a series of choices involved in its creation that must be considered upon its review:

1. We have examined the situation of four Southern Cone countries: Argentina, Chile, Paraguay and Uruguay. We have included Colombia, as it is of particular interest for Karisma Foundation. Brazil was deliberately left out, since there is already a recent Green Paper published on this subject (Rossini, 2010).
2. Even though OER are generally associated with digital resources, there is nothing that prevents them from also including physical materials. In Latin America, the digital content coexists with and complements the traditional materials (textbooks, books, etc.). Therefore, we have looked at educational resources in print and in digital.
3. Since paper textbooks continue to play a leading role in the region's education systems, we have evaluated the way in which their procurement takes place. This in turn allows us to draft recommendations on more efficient ways to conduct public expenditure based on the concept of OER and on the aspirations gathered in the Paris OER Declaration.
4. The data presented is either publicly available and can be accessed by concerned citizens in primary or secondary sources, or has been provided by education ministry officials from the countries studied. We expect that anyone shall have the capacity to evaluate and audit the figures noted here, but for the moment this fact shall remain as an annotation.
5. In order to limit its scope, this paper is focused on the definition adopted by the Paris Declaration. We are conscious of the importance of the various concrete elements contained in this definition (e.g. the scope of the meaning of resource, details on the technical or legal barriers to guarantee interoperability, etc.) and of the importance of establishing standards for their implementation, but the scope of this paper does not allow us to bring our analysis to this level of detail.

The methodology used for this research included a literature review, which yielded information about studies on cost, quality, analysis, etc., in education. In this sense, research reports, institutional analysis, among others, were reviewed. Once this stage was completed, it was analyzed national education systems, in particular the production and acquisition models of educational resources and programs on digital technologies in education, reviewing documentary sources –physical and virtual– from first and second hand. Interviews with the responsible national education authorities were conducted in order to fill the gaps and corroborate and clarify data. In this regard, it is worth

noting that data collection and corroboration in the distance was a limitation that we encountered when carrying out this research, in which much of the information requested is not available or compiled by public entities.

In this paper, we provide a context that seeks to locate the issue within the broad field of the right to education as a human right. We also include figures that account for the relationship between education funding and academic performance. In order to attempt to approach OER as a public policy tool, we devote a section to briefly discuss the development of this concept. It also attempts to approach OER as a public policy tool. Then, we dedicate a space to highlighting the most relevant aspects and in a comparative way offer a better understanding of the state of the art among the countries studied. Finally, we close a set of conclusions and recommendations for adjusting and channeling public policy towards the fulfillment of the principles contained in the Paris Declaration.

Background

The human right to education

Education is the pillar that underlies social and economic development for any society. International, regional and national organizations have also recognized its impact on the promotion and development of equality within and among nations. For these reasons, the right to education has been included in all the major international human rights instruments. The commitments acquired therein with regards to education have been consigned and incorporated into national constitutions and legislation. As such, there have been enshrined constitutional articles guaranteeing the right to free and mandatory education, and establishing budgetary allocations for their education systems.

In the course of this investigation it became clear that in the countries studied, governments have taken positive steps towards meeting their international obligations. Coverage of the educational system at the primary and secondary levels is practically universal in all five countries. That is, education is free and mandatory at these levels, as a result of policies that have progressively enshrined this government obligation into the law, and allocated the necessary resources to make it a reality. Nevertheless, this legal reality is not necessarily reflected in practice.

Many challenges remain. Among them, Argentina, Chile, Colombia, Paraguay and Uruguay must maximize public spending on education and guarantee the quality of the education provided by such things as improving teaching skills, effectively adopting digital technologies in teaching and learning, strengthening educational content, among other.

Regional education funding and educational performance

As the Programme for International Student Assessment (PISA) concluded, State educational investment has the potential to generate significant benefits for their social development, thanks to education's capacity to provide similar opportunities for all. For this reason, a frequent measure used to assess the level of government commitment to education consists in comparing public spending in education with the Gross Domestic Product (GDP).

According to the Organization for Economic Cooperation and Development (OECD) survey on educational spending in the region "Fiscal policy and development in Latin America: What is the link," published in *Latin America economic outlook 2009*, Latin American countries spend significant portions of their national budget on education. This expenditure experienced general constant growth between 2000 and 2008. Nonetheless, the efforts of Argentina, Colombia and Uruguay did not show weighty growth, whereas Chile and Paraguay were unable to maintain their former levels.

In the region, educational expenditure as related to GDP hovers around 4% or 5% (OECD, 2008). We therefore know that investment in education by some Latin American countries is close to the

average for OECD countries. Its ratio per capita, however, is five times higher, due to the fact that the school-age population in the region is among a quarter and a third of the total population. For OECD countries, in contrast, it was less than a fifth, according to 2006 figures –the reference figure for the 2009 report–. In the *Latin America economic outlook 2013* analysis, economic spending in education failed to expand, but it did in its relation to the private sector (ECLAC & OECD, 2013).

Since the year 2000, and every 3 years thereon, the OECD has conducted the international learning test PISA, whose objective is to measure competencies in reading, math and science of 15 year olds. These results are useful for measuring and comparing student performance in a diverse variety of countries. It also provides policy assessment and recommendations.

In relation to the 2006 PISA results, OECD analyst Pablo Zoido mentioned that, with similar spending as the regional average, countries such as Lithuania or Macao/China have achieved better performance for their students, who come from diverse socio-economic backgrounds (Zoido, 2008). Latin American students, on the other hand, performed three years below when compared to the OECD average. Further, their failing scores were much more drastic, given the fact that most students in the region did not achieve a basic level of reading comprehension.

By 2009, Latin American countries that participated in the test had improved their overall performance (Ganimian & Solano, 2011). However, they are still within the worst performing. In light of these results, it may be relevant to highlight the OECD's conclusion that "the region's true priority is that of improving the quality of spending, making it more efficient and better channeled" (OECD, 2008).

To have a positive impact on educational outcomes, economic policies must target several items simultaneously. As part of direct educational spending, one budget item is devoted to the functioning of a country's educational system. In the countries studied, between 75% and 95% of public spending on education is devoted to the educational systems' operation and management (Ministerio de Educación y Cultura de Uruguay, 2012; Ministerio de Educación Nacional de Colombia, n.d.; Preal & Instituto de Desarrollo, 2013). On the other hand, educational spending is also used to support educational processes, such as subsidies for textbooks' development and procurement, and, in general, of educational resources. It is in this type of spending where we propose that efficiency could be improved.

OER as a public policy tool for achieving states' goals

UNESCO first coined the term Open Educational Resources in 2002 during the *Forum on the Impact of Open Courseware for Higher Education in Developing Countries*. At the time, it was established that OER were understood as "[. . .] open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes."

In 2012, the UNESCO Paris OER Declaration was adopted at the closing of the World OER Congress organized, which gathered governments, experts, civil society, and educators to discuss and share the best current examples related to policies and initiatives in this field. As said, the Declaration's recommendations lead the interest of this research.

Governments commonly supply the educational system with materials that are free to use. This approach limits itself to providing consumer goods to a sector whose modern pedagogical practices are conceived for re-utilization, particularly when mediated by digital technologies that facilitate collaborative production. There are many advantages in encouraging educators and students to be active participants in the creation, use, adaptation and improvement of their materials. Among them, the chance to localize them to their needs, update them and make more efficient use of public investment. These were precisely the features highlighted in 2007 in what is known as the *Cape*

Town Open Education Declaration: Unlocking the Promise of OER, which draws a roadmap toward openness.

In addition, the philosophy that underlies OER modifies the consumer logic of the publishing market by focusing on the efficiency of public investment and by stressing that what is funded with public resources must remain public. Thus, in the analysis undertaken by the OER expert Carolina Rossini regarding Brazil, the concept of OER “places educational materials as common and public goods from which all should benefit, [. . . they consist in] a view that sees knowledge itself as a collective social product that naturally forms a commons that needs to be accessible to all,” and therefore, she says, “once the public has paid the resources (through taxes), how should they be managed and made available?” (Rossini, 2010, p. 5). If the answer lies in access to free materials that remain controlled by third parties that do not allow teachers and students to harness the disruptive capacities of digital technologies, we must acknowledge that we are wasting an opportunity: making the most of this public investment to develop or procure OER and, in so doing, to modify this relationship.

This decade has seen the growth of resources considered OER as well as their number of users (Carson, 2006). Worldwide, there has been an increase in State-led projects that adopt the principles and standards of OER, and some of them have documented results that demonstrate their efficiency (Creative Commons, 2013). In this last case, it is worth mentioning the Open Textbooks project in the U.S. State of Utah, which has striven to demonstrate the cost effectiveness of this approach (Utah Open Textbook Project, n.d). It is claimed, for instance, that the State of Utah manages to produce textbooks for less than 5 dollars each (Utah Open Textbook Project, 2011). According to recent academic research, their impact is similar to that of more costly textbooks, i.e., quality is not affected (Hilton & Wiley, 2012). It is worth pointing out that it is in the English-speaking world where OER have developed most, and therefore, where the majority of data regarding these initiatives and their impact is collected (Botero & Labastida, 2008). We still have much room for improvement in other regions, as long as we learn from initiatives that have come before, and that we take seriously the Paris Declaration’s proposals.

The Paris OER Declaration proposes a commitment by governments to promote open licensing for publicly funded educational resources. Moreover, this instrument aims at discussing OER true potential for advancing the objectives of the most relevant international human rights instruments. OER represent a strategic opportunity to improve the quality and efficiency of education. OER can contribute to the compliance with international obligations and goals assigned to States, and therefore their promotion ought to be in the hands of governments themselves.

The commitment to mobilize States toward the promotion of standards for investing public resources is evidence of the alignment between the objectives of OER and the core function of any public policy.

Public investment in the production, procurement and dissemination of educational resources in the southern cone and Colombia (models)

The difficulty in finding information on public sector spending is a widespread problem, and not exclusive to the region (Batare, 2012). This situation is complicated further if we consider that spending is country-specific, given the varying structures between educational systems, its diverse funding sources, and the fact that it is subject to the way in which functions are distributed between the national and local levels, and between the public and the private sector.

Once again, we must remember that over the past few years, governments in the region have made special commitments to public education, increasing spending in relation to GDP, and enhancing the guarantees on the mandatory nature of education.

The impact of government purchases on the Latin American publishing industry is well known. Rosa Dávila, Mexican cultural researcher, asserted in 2005 that “[. . .] publishing development and production has been largely geared towards meeting the needs of the educational system, for which school textbooks constitute one of the highest impact sectors in local publishing and in the expansion of the book market.”

The strong dependence of the region’s textbook publishing market –closely related to public spending– appears to be corroborated by the Regional Centre for Book Development in Latin America and the Caribbean report *Programs, Official Purchases and Provision of School Textbooks in Latin America* (Uribe, n.d.). This dependency relationship is such that any decision adopted by governments in this regard is certain to have direct repercussions in the industry. However, the opposite is also true; precisely the same relationship has led to significant pressure to make spending for educational materials the engine of an industry, i.e., focusing on responding to the industry’s needs.

A consumption model has prevailed in the region, which obscures discussions regarding the needs of the education sector in regards to co-creation models. This becomes particularly significant in light of the capacities offered by the new technological environment. It is likely that this may help explain the absence of more aggressive initiatives in favor of adopting OER standards, since they would substantially alter the reigning model.

Key comparisons and conclusions

One could hardly conclude that government policies for the procurement of educational resources are lined up with the Paris OER Declaration’s principles. Some initiatives and programs are to some extent aligned with the OER movement, but there is still a long path ahead.

In general terms, some of the countries studied have seen some sustained –yet not exponential– growth on education investment in recent years. Chile and Paraguay are exceptions to this trend, where perhaps the effort has not been sufficient. Despite the lack of specific spending data on the provision of educational materials, it is clear that countries do purchase and offer their elementary and secondary students free educational materials, and yet have not taken steps beyond this option. For the production of these materials, each of these countries has designed mechanisms for the acquisition of textbooks and books that depend on what is available in the commercial market. Some isolated projects have proposed developing the textbooks and assuming the costs of production. However, even for these exceptions, the contracts still result in the purchase of final products that are subject to the rationale of commercial procurement.

One of the main difficulties faced in conducting this analysis was the dearth of information available from the ministries of education regarding their detailed expenditure. There was willingness by government officials to provide the necessary figures, but communication was not entirely satisfactory. This would appear to be due to the fact that the countries themselves have not systematized this information in such a way that it is easily identifiable.

Starting from the figures found, we do know that investment in education closely matches administrative and operational expenses. These expenses comprise between 75% and 95% of education budgets. Bearing in mind that the remaining percentage also includes subsidies or transfers to private entities (student households and other private institutions) as well as expenditures on educational resources, among others, it may be supposed that the proportion allocated to the procurement of school textbooks does not entail an inordinate expense.

In fact, by and large, the countries do not develop their own material. They are consumers in the publishing market. The general models for expenditure in school textbooks, with some minor

variations, correspond to the overall system of procurement of goods by public administrations: public-bidding models. Under this rationale, the State has become a passive agent of the publishing market, granting strong economic power to the school publishing industry. This situation is not intrinsically negative, but it could be better structured in order to make the most of mutually beneficial models.

Despite the marginal expense of textbook purchases by governments, we were able to establish that it constitutes a substantial percentage of the publishing market within each country. It is interesting to note that in overall terms, the participation of foreign publishers in the region is significant. One should pay special consideration to the growing presence of transnational publishers in the Argentinian market, which reaches 35%, and by Spanish publishers who encompass 25% of the market in Colombia and 47% in Chile (Ministerio de Educación de Argentina, 2013; Cámara Colombiana del Libro, 2011; Ministerio de Educación de Chile, 2009).

All five countries have commenced developing digital tools in education. It would appear that the second principle of the Paris Declaration –“Facilitate enabling environments for use of Information and Communications Technologies (ICT)”– has made greater inroads in the region. All countries have an interest in advancing and giving priority to this sector. Only Uruguay and Colombia have related this with steps towards openness. The countries analyzed have also considering the way in which such resources will circulate in the digital world. Even though each of these countries participates in initiatives such as national education portals, the preeminent concern is to endow them with resources to which the population may have free access, without deeply considering the type of licensing.

In exploring digital environments, governments begin to think beyond what is simply free. This becomes palpable in the production/acquisition projects for these materials. Uruguay, under *Ceibal* Plan, has been negotiating licenses to use the material for a period of two years. Colombia and Argentina are exploring public tenders for developers of digital educational resources in which they require the waiving of rights, with the understanding that funding production allows them to request control over the way in which these developments will be used in the future. Colombia has cooperation agreements for content and application developments, although the type of licensing to be applied is not known. However, none of these covers the full scope of OER.

From the data gathered, we deduce that public spending for the acquisition of educational materials is not part of any public policy. On the contrary, it falls at the mercy of succeeding administrations that promote initiatives and projects in the absence of general guidelines. In this field, the only such attempt that has made inroads has been the *National Strategy for Digital Educational Resources* (Ministerio de Educación Nacional de Colombia, 2012) in Colombia, where at least some thought has been given to future re-use.

Reducing the digital divide appears to be the ultimate goal of government policies on ICTs and education. The One Laptop Per Child model is well established. It is a clear policy in Uruguay, Argentina and Paraguay. Chile has opted for a variation, seeking to address learning problems and by providing one laptop per student in the classroom. In contrast, the Colombian Ministry of National Education has concluded that results in other latitudes are far from ideal, thus, has rejected the model. However, that decision is facing uncoordinated policies, in which, the Ministry of ICTs is in the midst of a national campaign to distribute tablets and computers to primary and secondary students.

On the other hand, educational systems continue to rely on the paper textbook. Several reasons come together to explain this fact. Educational institutions in the countries remain anchored in traditional teaching methods. The digital divide is also a decisive factor. Distrust of digital content and lack of skills for pedagogical uses of ICTs for teachers may be another reason. Despite the

great efforts made to introduce digital technologies into educational environments, these have not been effectively appropriated. As we saw in the case of Paraguay, it is likely that marketing by publishers has some repercussion in this area (ABC Color, 2011).

Educational portals in the countries have not replaced physical contents, nor have they transformed teaching methods. Digital contents do not appear to have the expected impact on teaching and learning. In Colombia, for instance, according to the Ministry of National Education, the hours of peak usage of the “*Colombia Aprende*” educational portal happen at night (Ministry of National Education official, 2013), showing that national efforts to promote the appropriation of digital technologies for education are not entirely effective.

It is also important to consider that national purchases of school textbooks play a significant role in the publishing industry. In consequence, decisions made in the future can have significant impacts on this sector. The Paris OER Declaration’s adoption will require a dialogue between governments and the publishing industry in order to transform the current relationship and to foster alternative that do not overburden the government.

In conclusion, the existing systems in the countries studies have not learned how to make the most of recent technologies, nor of the principles envisioned by the OER movement. The adoption of OER policies can harvest concrete advantages in public education: enhancing learning opportunities and greater access to knowledge; strengthening the educational communities thereby creating a more robust education system as a result; reinforcing and diversifying educational curricula; and reducing educational costs, resulting in a more accessible education. Nowadays, however, the paradigm is rooted in the production of paper textbook by an industry motivated by profit rather than by the benefit of society.

Recommendations

In order to transform the development and acquisition of educational resources in the countries studied, governments should become facilitators so educational systems become content producers. In this way, public funds could be used more efficiently for the benefit of society. The latter should be accompanied by transparency policies that account for the use of public funding and include progressive impact assessments of such uses. Moreover, the State ought to identify and foster existing communities that are proliferating thanks to technological enablers, and help them become platforms for the development and promotion of OER, i.e., collaborative knowledge producers.

These reforms can be summarized as follows:

1. *A commitment to OER will require an adjustment by governments of the procurement model.* The State and the publishing industry shall renegotiate their relationship. The industry could shift to providing support to improve the capacities of the educational system with the goal of sustainably developing quality educational materials. This effort begins by providing teachers with materials that they can in turn reuse and reformulate. Governments ought to consider modifying the textbook purchasing conditions, developing the idea that public sources are goods serving the educational community. The most significant change resides in the use of open licenses, facilitating materials’ search, reuse and sharing.
2. *It will be important to build stronger links between programs for the educational use of ICTs and the acquisition of digital educational materials that fulfill international OER standards.* Greater synergy between these government policies can address many of the current problems related to the lack of relevance, diversity and quality of educational materials.

3. This investigation revealed *the need to work to counteract the general lack of indicators that would facilitate measuring the impact of OER policies, and of the use of public funds to finance their production and use*. Developing these indicators would result in improved scrutiny of public investment on the educational resources production. This recommendation goes hand in hand with the need to conduct an *economic analysis of current investment by these countries on the education resources acquisition*, encompassing the various national and/or subnational programs responsible for developing these resources. Such analysis should also take into account the publishing market, in such a way that it can measure the real price of producing resources. A study based on clear figures should allow us to produce even stronger arguments to convince governments –and perhaps educational publishers– that taking the chance to produce OER is a strong move for education.
4. On the other hand, in response to the difficulties we encountered for finding concrete data on the educational resources acquisition, we recommend that governments *produce better information, figures and indicators regarding spending in these areas*. If this information were to be lifted and compiled, the State itself would be in a better position to conduct its own impact assessment for these expenditures. Any such process will require indicators designed to facilitate this analysis.
5. In direct relation to the recommendations above, we see *the urgent need to inform and train the education community on the nature of OER and the advantages they may offer to the educational process*. A commitment to the Paris OER Declaration demands a community that is knowledgeable on the subject and familiar with the OER ecosystem. To harness their full potential, governments ought to look into the underlying characteristics that define OER, and aim to recreate them, especially in their efforts to harness ICTs to maximize their impact.

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