THE CHALLENGE OF OPEN AND ACCESSIBLE EDUCATION

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SOUTH AMERICA
The challenge of open and accessible education
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Many South American students face severe infrastructural and resource challenges in accessing tertiary education. Obstacles include a lack of affordable textbooks, computers and broadband connectivity, a situation compounded by a lack of clear policy on how to address challenges related to issues of poor access and quality of education.

Advocates of open educational resources (OER) – digital materials that can be legally shared without copyright restrictions or cost to the user – argue that OER can potentially reduce educational costs and enhance the quality of learning materials through broadening the contributor base and promoting a more participatory approach to knowledge creation. Because they are free, their use implies cost savings for users in personal and institutional learning contexts.

Because they are legally shareable, they also break the stranglehold that full copyright has on many educational materials, allowing for greater flow and adaptability of knowledge.

But how would OER fare in contexts with significant infrastructural access challenges?

To understand whether, how and under what conditions OER adoption occurs in the Global South, the Research on Open Educational Resources for Development (ROER4D) project embarked on a four-year research programme with over 100 researchers in 18 sub-projects across 21 countries in South America, Sub-Saharan Africa and South and Southeast Asia.

ROER4D recently published an open access edited volume, *Adoption and Impact of OER in the Global South*, edited by Cheryl Hodgkinson-Williams and Patricia B Arinto. The book includes chapters discussing OER activity in four South American countries: Brazil, Chile, Colombia and Uruguay.

Baseline of OER activity

In the opening empirical study of the book, "OER use in the Global South", José Dutra de Oliveira Neto, Judith Pete, Daryono and Tess Cartmill establish a baseline of OER activity in South America and across the Global South.

Based on a survey conducted with 295 instructors at 28 higher education institutions in nine countries, their data show that while 56% of instructors in South and Southeast Asia had used OER, 49% of instructors in South America (Brazil, Chile and Colombia) had done the same, and 46% of African instructors surveyed had done so. There is a modest difference between the regions, but it reveals that South America has plenty of room to expand with regard to OER use.

Part of this growth would likely come with greater awareness of OER as a concept. Some 36% of South American respondents (compared to 31% in Sub-Saharan Africa and 13% in South and Southeast Asia) said that they were "not sure" whether they had ever used OER, suggesting that they were not adequately acquainted with it as a concept to determine whether they had ever engaged with it.

The authors were surprised by the fact that, of the South American instructors who had used OER, more were likely to have done so if they did not have a PhD. This indicated a mild association with OER use and comparatively lower educational qualifications.

They state that: "This might be because instructors without a PhD are more likely to look to other providers of educational materials for their teaching than to develop everything from scratch themselves. They may not consider themselves full 'experts' on a subject and thus are happy to look to other educators' materials for support. Additionally, these instructors may have earned diplomas, bachelor's or masters degrees with the express aim of focusing on teaching – rather than research, as might be the case for those with PhDs – and thus have spent more time and energy seeking out innovative materials for their teaching."

In the chapter, "Open Access and OER in Latin America: A survey of the policy landscape in Chile, Colombia and Uruguay", Amalia Toledo presents an overview of the funding, policy, legislative and procedural mechanisms adopted by these countries with respect to open access and OER initiatives in higher education.

The study addresses the question of how the higher education systems in these countries operate and fund their activities in general, examining how

existing policies and processes incorporating open access and-or OER influence student access to learning and research materials. It also asks what policy, advocacy and community-building interventions might be useful for promoting 'open education' activities.

Low OER awareness

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 sector. Low OER awareness and a commercialised model of higher education appear to account for the lack of 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.

To boost OER engagement in the region, the author recommends 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, and providing greater visibility for existing open education projects in the region.

In the chapter, ["Effectiveness of OER use in first-year higher education students' mathematical course performance"](), Werner Westermann Juárez and Juan Ignacio Venegas Muggli evaluate the impact of OER on first-year students' mathematics course performance at the Instituto Profesional Providencia (IPP) in Santiago, Chile, where more than half (52%) of first-year students typically drop out of their studies.

Professional institutes (*institutos profesionales*) such as IPP address around 60% of national, post-secondary education supply and typically accommodate many underprivileged and disadvantaged students with low levels of basic knowledge and cognitive skills. In order to address the high rate of attrition, IPP established an innovation fund and a project to profile, assess and monitor student performance through an early warning system. It was envisioned that a strategy to promote OER uptake could complement these efforts.

By examining an OER intervention amongst first-year students, this study sought to identify ways in which OER can provide new tools, opportunities

and contexts to improve student performance and reduce dropout rates.

Students in one scenario who used a Khan Academy OER collection obtained statistically significantly better exam grades than those who used a traditional proprietary resource or an open textbook (another form of OER), suggesting that not all kinds of OER have the same effect on student performance. In a second scenario, there was no improvement in mathematical course performance amongst students using OER.

The challenge, as the authors note, was showing how the openness of a resource makes a difference in student performance, as there are many other design and pedagogical factors to consider.

In terms of student attendance, students who used the Khan Academy OER had significantly lower attendance levels than those who relied on the traditional textbook, which may be due to the fact that when students have access to the infrastructure required to access OER remotely they tend to work more from home.

It is worth also noting that the proprietary textbook involved in these scenarios was a printed book which cost US$45, a hefty fee for students. There were only six printed copies in the library which had to be shared across three IPP campuses.

Time and infrastructure

The data from this study highlight the fact that OER implementation did not work well when students lacked adequate time and the appropriate infrastructure in which to interact with these resources. The optimal utilisation of OER relied on institutional provision of computer labs and conducive working conditions, which were not always present.

The authors recommend that Chilean institutions enhance conditions in which OER strategies could be implemented rather than solely focusing on critique of these resources.

While the students and teachers perceived OER to be relevant and useful in the Chilean context, the chapter concludes with the insight that openness does not necessarily produce an impact in and of itself, but is instead part of a greater set of tools and practices in which many variables exert an influence.

The research in this book suggests that the higher education sector in South America would benefit from greater use of OER, but only if students

have access to the necessary infrastructural amenities that optimise engagement with these materials. Educators also require greater clarity on policy relating to this pedagogical innovation, as they do not currently have much institutional or national guidance concerning OER adoption.

The challenges entailed in South Americans' use and creation of OER are significant, influenced by infrastructural, legal, technical and pedagogical factors. The ROER4D volume illuminates how these factors currently shape OER adoption in the South American context, creating a baseline of empirical evidence that can be built upon.

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