

**Title:**

**Connecting the dots: linking Open Access and Open Educational Practices to enhance Open Educational Resources and Repositories adoption among Higher Education Institutions**

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**Abstract:** The Interdisciplinary Nucleus of Open and Accessible Educational Resources (OER Nucleus) of the University of the Republic (UdelaR) in Uruguay, integrates the open practice of research groups from different fields combined with the participation of civil society organizations, educational institutions and governmental sector. The adoption of Open Education strategies, and in particular OER adoption, requires actions that contribute to change educational practices, as well as the development of infrastructures that support OER's life cycle. One of the OER Nucleus research lines integrates information and communication technologies (ICT) with teacher training, towards an improvement in the use and collaborative creation of Open and Accessible Educational Resources and Open Repositories. This paper presents preliminary results of the actions carried out in this line, providing substantive evidence for the development of a sustainable OER Repository and strategies for OER adoption at the university. The convergence between Open Access and OER repositories is analyzed, as well as the requirements for adapting institutional repositories for the implementation of OER collections. Finally, future strategies for the adoption are presented, based on the development of Open Practices.

**Keywords:** OER, Open Practices, Repositories

## **Extended Narrative**

### **Introduction**

Open Educational Resources (OER) and Repositories is essentially an interdisciplinary and intersectoral area. From an innovative integral approach the Interdisciplinary Nucleus of Open and Accessible Educational Resources (OER Nucleus) of the University of the Republic (UdelaR) in Uruguay, integrates the open practice of research groups from different fields - like Education, Computer Engineering, Librarianship, Sociology, Communication, Psychology and Law - combined with the participation of civil society organizations, educational institutions and governmental sector.

The OER Nucleus is an academic structure for research and intervention in OER, with formal existence in the Interdisciplinary Space of UdelaR since June 2015. The OER Nucleus proposes to carry out research and developments to promote educational inclusion facilitating access to learning resources. A number of projects with national and international funding were developed, which have contributed to the creation, dissemination and appropriation of different initiatives to promote the development of OER and OEP, Inclusive Education and the integration of Technologies in Education in Uruguay and Latin America.

The adoption of Open Education strategies, and in particular OER adoption, requires actions that contribute to change educational practices, as well as the development of infrastructures that support OER's life cycle. One of the OER Nucleus research lines integrates information and communication technologies (ICT) with teacher training, towards an improvement in the use and collaborative creation of Open and Accessible Educational Resources and its administration through Open Repositories.

This paper presents preliminary results of the actions carried out, providing substantive evidence for the development of a sustainable OER Repository and strategies for OER adoption at the university. The convergence between Open Access and OER repositories is analyzed, as well as the requirements for adapting institutional repositories for the implementation of OER collections. Finally, future strategies for the adoption are presented, based on the development of Open Practices.

### **Connecting Open Access and OER**

According to the approach towards a convergent perspective among different lines of development of the Open Movement- Open Access, OER, Open Data, Open Research, etc., - (UNESCO, 2017) the OER Nucleus has promoted the integration of OER

collections within “Colibrí”, UdelaR’s current open access institutional repository of theses, publications and research works. Two main initiatives were developed, within the framework of research projects funded by the National Agency for Research and Innovation (ANII) and the Interdisciplinary Space of the University of the Republic

One initiative was the implementation of a two years pilot project (2015-2016), in which OER Nucleus worked with university libraries to transform into OER some of the textbooks developed by teachers, and widely used among students. These resources were published within the open access institutional repository, with very auspicious results. An example is the pilot carried out with the library of UdelaR’s Dentistry Faculty, involving the publication of the first openly licensed (CC BY-NC-SA 4.0) teaching handbook: Craniofacial Anatomy (Gutiérrez, et al, 2015). This was the most visited / downloaded item in Colibrí, since its deposit until October 2016. Due to the success of this first experience, the pilot was extended to 9 similar books.

The second initiative was the development of a qualitative study on perceptions, attitudes and practices of academics regarding repositories (Rodés, Gewerc, & Llamas, 2016). It was aimed at understanding their needs, and what they did not currently find in repositories, contributing to an explanation of low adoption. Representations around what teachers see as an “ideal repository” were released. Preliminary findings showed that “local” and “interconnected” were the predominant perceptions. The preference for the ‘local’ is related to other findings, like the “value of trust”, the “fear of appropriation”, the “willingness to share with peers”, and the “need to grow from small to big”. A preference for interconnected repositories is linked to findings like the “need to find everything in the same place”.

These results led to identify that the most efficient and sustainable option for the development of an OER Repository for UdelaR (and other higher education institutions) is the creation of specific collections of OER within institutional repositories. The creation of a specific OER repository, different from the one that UdelaR already has, is not justified. This would involve unnecessary duplication of computing resources, support, librarians, etc. and would compromise the viability of this venture and its long-term sustainability.

### **Adapting Open Access Repositories for OER collections management**

According to the results of the exploratory actions previously carried out, open access repositories should be adapted to the special characteristics and needs in terms of management, preservation and life cycle that distinguish OER from research resources.

Incorporating OER in an institutional repository, therefore requires a differentiated approach.

This scenario involves a challenge. Colibrí repository focuses on the publication and cataloging of scientific publications such as theses, articles, reports and other research documents, and has not been created with the initial intention of including teaching and learning resources in its collections. Bueno & Hernández (2011) highlight the fact that there are significant differences between the use of repositories for educational materials and research repositories. While the repositories of scientific publications focus on providing access to this type of resources, OER repositories emphasize the possibility of their reuse, adaptation and repurposing.. That is the reason why it will be necessary to build a management approach and a different treatment of the resources.

The first thing to note is that all the resources contained in an institutional repository, and especially if the repository is governed by an open publication policy, can be used as an educational resource. However, this is not enough to transform it into an OER repository. To really host an OER collection, the repository should organise? the resources according to their specific characteristics of open educational resources. The two main features are: (i) the educational resources comply with the characteristics of being modifiable and reusable and (ii) they have metadata or descriptions of the properties that identify the educational use of the resource, for example, thematic, degree of difficulty, previous knowledge required, etc.

In order to contain OER that are modifiable and reusable, the repository must implement?, as a minimum requirement, open support policies and the uploading of editable versions of each resource. This will allow not only access to the resource but also its subsequent manipulation and modification. At the same time it is desirable that the repository provides mechanisms to make sure that the authors are adopting the appropriate licenses when reusing resources.

On the other hand, we found that the ability to manage educational metadata forces us to modify the metadata standard of the resources of the Colibrí repository to serve the OER domain. The two most commonly used standards for OER metadata are LOM (IEEE, 2002) and Dublin Core (Dublin Core, 2012). LOM facilitate, through well-structured descriptions, the creation, exchange and use of "educational resources". Dublin Core is a more generic non-oriented scheme, defined by 15 basic descriptive elements; its simplicity, flexibility and adaptation make it one of the most internationally used schemes. It is a basic description mechanism that can be used in all domains, for all types of resources, simple but powerful, easily extended and can work together with

other specific solutions. Colibrí already uses the Dublin Core metadata standard for institutional publications. For these reasons it will be necessary to opt for a combined proposal, add the descriptors corresponding to pedagogical aspects of LOM to the existing descriptors in Colibrí of Dublin Core. These should facilitate the discovery, location, evaluation and acquisition of educational resources by students, teachers or automatic application processes. It is also important that navigation within Colibri allows users to easily identify the structure of resources available to them. It is expected that peer collaboration activities within the frame of Communities of Practice will generate this metadata.

### **OER and Open Educational Practices**

The design of a communication strategy, dissemination and adoption by the academics is the biggest challenge we face to achieve their appropriation of the OER repository.. For this reason we aim to develop a pilot based on the creation of Communities of Practices aimed at stimulating the development of Open Educational Practices (OEP)

The generation of communities of practice involves people who interact with each other and exchange ideas on a topic of common interest, generating networks of participation and innovation and also open knowledge. To achieve this, we will develop strategies already proven to be successful in previous projects such as LATIn Project, Latin American Initiative for Open Textbooks, (Rodés, Podetti, Hernández, & Collazos, 2015) and REMAR Project, Mercosur Network for accessibility and the collaborative generation of OER (Díaz et al., 2014).

### **Conclusions**

It is expected that, through the availability of OER in Colibri repository, as well as the stimulation of OEP, we will set up the initial stages to build a network of teachers who will generate OER adapted to the educational needs of UdelaR and facilitating reuse by peers.

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