

# **Innovative experiences of Open Educational Resources towards academic knowledge mobilization: Latin-American context**

Jose Vladimir Burgos Aguilar & Maria Soledad Ramirez Montoya

Tecnológico de Monterrey  
vburgos@itesm.mx, solramirez@itesm.mx

## **Abstract**

Walking along the movement of Open Educational Resources (OER) it can be seen the need to go beyond knowledge sharing and dissemination, in this paper are presented some educational experiences towards an open educational practice such as: [a] the adoption of open digital materials for formal academic programs; [b] publication of academic content through the OpenCourseWare initiative (<http://ocw.itesm.mx/>); [c] digital knowledge dissemination through the initiative called "Knowledge Hub" (currently named "temoa": [www.temoa.info](http://www.temoa.info)) that provides a public and multilingual catalog of OER (aiming to support the educational community to find those resources that meet their particular needs for teaching and learning through a specialized and collaborative search systems and social tools); [d] mobilization of knowledge by facilitating remixing of core components of courses (sharing of new ideas for teaching by creating new topics and course subjects) some examples are: (d1) an institutional repository of OER, (d2) OER as textbook alternatives (anthologies), (d3) open electronic textbook, (d4) OER as reusable resource like study cases, learning objects and learning resources, (d5) OER as content generated or modified by a learner, (d6) studies to integrate communities of practice through inter-institutional research projects, (d7) training of faculty from several educational institutions (University level to basic education "K-12") to foster a culture of "prosumers" (*producers+consumers*).

## **Keywords**

Open practice, community, knowledge transference, knowledge mobilization

## **Introduction: academic knowledge mobilization**

The creation and transference of knowledge is one of the strategies of wealth and prosperity most promising and challenging in the emergence of a knowledge-based society. The main objective for an organization has to be the discovery, instrumentation and operationalization of a sustainable cycle of virtuous value creation as a side effect of the capitalization of the flow of information and knowledge in the activities produced by the most valuable asset of the organization, human capital. The capacity for innovation in processes that are linked to the production systems is an indicator of competitive strength and vitality into an organization and has become extremely valued in a knowledge-based economy. In an educational environment this means valuing and capitalizing knowledge produced through its academic community, It can be seen through the creation of courses, teaching materials, publication of articles and books, conferences and lectures, research reports, learning resources and other educational materials.

Knowledge depicted as Open Educational Resources (OER) may be studied as a "digital object" that provides information, just as it may also be seen as a "digital learning object" defined as "an unique entity developed for sharing information, generation of knowledge, skills and attitudes

which makes sense according to the needs and context of the individual"(Ramírez, 2007, p.356-357).

To move beyond the open educational resources (OER) movement of creating and sharing knowledge, it is important recognize and properly document the type of knowledge being generated in educational institutions. Educational institutions are aimed to provide appropriate mechanisms to encourage knowledge transfer in the same measure that they make a conscious recognition of administrative, technological and legal barriers. It's crucial that policy makers and administrative staff take actions to facilitate knowledge-based strategies lined-up to the mission and vision of organizations to make possible a real change in the three levels of planning: strategic, tactical and operational. To succeed toward a knowledge-based economy, organizations including educational institutions need to recognize their knowledge assets and facilitate a dissemination process through an active local community.

According to the OPAL (2011) in its report "Beyond OER: Shifting Focus to Open Educational Practices" there are five relevant barriers that need to be addressed to ease the task to individuals to use OER: [1] Lack of institutional support; [2] Lack of technological tools; [3] Lack of skills and time of users; [4] Lack of quality or fitness of OER; [5] Personal issues (lack of trust and time). The report argues for building confidence in the use of OER to enhance their actual usage as well as the creation of open learning frameworks to transform the way we see education nowadays.

One of the critical barriers that needs to be addressed is the issue of protecting knowledge assets through the operationalization of mechanisms of intellectual property and copyrights at the barely moment that the knowledge is generated by the creator. Without the proper legal management of digital objects (OER) the efforts will be diminished just like its reuse, impacting its continuity in time for further uses. It is estimated that most of the existing educational material available over the Internet is protected by traditional copyright terms and conditions of use, which makes difficult to share it and make it "open" (Atkins, Brown and Hammond, 2007). An open educational resource is characterized for being open-access materials, and exposed to the public view, ensuring that it does not restrict the user with further conditions and should also ensure that it is of "free use", meaning that educational materials may be used without having to make any payment of royalties of use for educational purposes.

### **Visualizing a framework for academic knowledge mobilization**

The biggest challenge is to foster the value of use of existing knowledge in the process of sharing, assimilation and application of focused knowledge to specific needs through bounded communities. In terms of effective knowledge application, entails the explicit definition of new knowledge through the process of tailoring existing knowledge from its source towards a specific application of need such that consequent actions are effective and significative (Bennet and Bennet, 2007).

To explain the process, first an awareness of the context is needed. At the global level the OER movement is growing from different perspectives (UNESCO, 2010). We may identify initiatives that allow the generation and production of resources and materials for teaching and learning, including awareness raising and legal licensing, and also we may identify a community of users

of OER. The OECD (2007) reports that in the OER movement, although it is difficult to measure or quantify statistically, we can see a rapid growth in the number of OER projects, and the number of people involved, identifying in January 2007 more than 3,000 open courses and instructional courseware available through more than 300 universities around the world. In April 2010, UNESCO (2010) recorded more than 950 members in the international community for the development of OER in 110 countries (36 of them developing). The international community began operations in 2005. Meanwhile based on the declaration for the development of open materials and resources for teaching and learning (The Cape Town Open Education Declaration) conducted since 2007 by the University of Cape Town in Africa has recorded approximately 2,098 people and 222 organizations interested in furthering the development efforts of the OER, and the use of technology in education (CT, 2010) were noted.

The problem then becomes that OER are available and dispersed on too many websites without a common categorization and a common documentation based on international standards of metadata to spur further dissemination through search engines, metadata harvesting, federated search and other informatics and Web mechanisms. This also creates a problem for the users at the moment of being able to find the materials and to discover the difference between educational resources and reliable sources vs. unreliable resources this due the lack of skills and time. Then, the emergence of “*infomediaries*” is needed, whose basic goal is to provide a service as aggregators of information, operating as catalogs (a metadata index). An “*infomediary*” (from the combination of the words “*information*” and “*intermediary*”) is a website that gathers and organizes large amounts of data (metadata) and acts as an intermediary between those who need the information and those who supply the information. Next, there is a dissemination process to different markets, and in the case of universities, the faculty is the idoneous community to catalyze change by mobilizing knowledge into specific educational practices like the creation of courses, workshops, learning activities, conferences and other teaching activities.

The problem and the solution are shown in figure 1. Educational institutions as part of their daily operation produces new knowledge in their classrooms, information centers, research centers and activities of intellectual production. The challenge we have is to refer an appropriate framework that allows implement a sustainable operating model not only in financial terms, but also considering the technical and organizational environment that allows coping with administrative needs, academic and legal issues as well as the production and OER publishing (Downes, 2007). One of the critical factors of success is the involvement of the academic faculty, the student community and the academic community in general in the production and reuse of OER by covering the bases of securing respect for copyrights and the proper use of intellectual property.

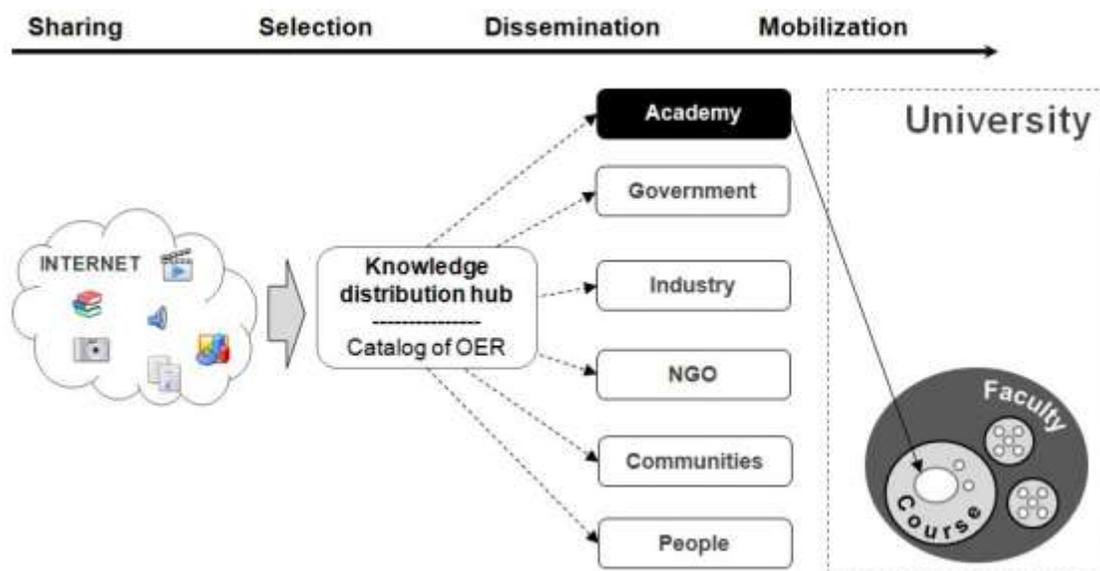


Figure 1. Knowledge mobilization of academic content

The OPAL report (2011) shows very important and significant findings, such as the fact that the OER initiatives have focused on the creation and publication of educational materials and resources, but neglected the transfer and mobilization of knowledge into learning and teaching practice. Towards an academic mobilization of knowledge represented by open educational practices, a definition is needed and the OPAL shows us the following:

*“Open Educational Practices (OEP) are a set of activities around instructional design and implementation of events and processes intended to support learning. They also include the creation, use and repurposing of Open Educational Resources (OER) and their adaptation to the contextual setting. They are documented in a portable format and made openly available” (OPAL, 2011).*

The full idea with open educational practices is to represent the activities of how educators are using OER in practice for teaching or research, as for example for reuse, revision, remixing, redistribution and production of new OER to promote innovative pedagogical techniques and strategies to empower learners on their lifelong learning path.

It is important to distinguish between the possible uses that can be awarded to educational resources on the basis of the legal licensing scheme applied and under which were released to the world. The words "reuse", "revise", "remix" and “redistribute” denotes different interpretations (Wiley, 2010; Hilton, Wiley, Stein and Johnson, 2010); figure 2 illustrates the potential for the OER movement and a descriptive explication is given as follows:

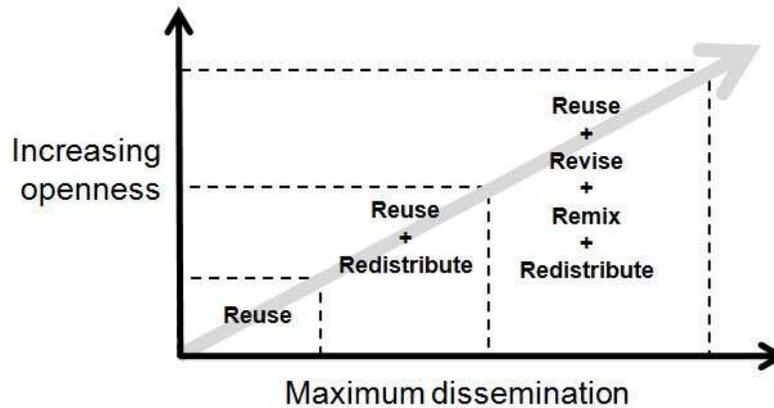


Figure 2. Potential of use of OER for further purposes

- *Reuse*: refers to the right to reproduce or download the material as long as the final user gives credit to the creator, with the restriction that the content can't be change in any way.
- *Revise*: this term refers to the right to build upon the original material to adapt it, modify it, or alter the content itself as long as the modifier gives credit to the original creator by indicating the main source.
- *Remix*: the term refers to the right to build upon the content by tailoring the material or disaggregating its parts to combine them and create something new as long as the modifier gives credit to the original creator by indicating the main source.
- *Redistribute*: this refers to the right create and facilitate copies of the original content with others as long as the distributor gives credit to the creator by indicating authorship.

Depending of the legal license attributed to the content it may be possible to use it for commercial purposes or not (Bissell and Park, 2008).

### Context and Impact of OpenCourseWare at the Tecnológico de Monterrey

The case study that is presented in this paper took place at a Mexican university, the Tecnológico de Monterrey ([www.itesm.edu](http://www.itesm.edu)) that has worked since the year 2007 on several open educational projects. These projects were working towards innovative practices to improve academic achievement. Based on experiences with the use and production of royalty free course materials, the Tecnológico de Monterrey has identified some key critical factors to develop a model to effectively knowledge transfer the adoption of OER.

The Tecnológico de Monterrey is a private, non-profit academic institution founded at the year of 1943 and composed of 33 campuses across Mexico. These campuses offer high-school programs, undergraduate and graduate degrees, continuing education, as well as social programs. Through technology-based distance programs, since 1989 the Tecnológico de Monterrey has been a pioneer in distance education. With more of 20 years of experience through its Virtual University, it currently reaches 29 countries and offers undergraduate, postgraduate, continuing education, and social programs completely online.

In the subject of knowledge mobilization of academic content, the Tecnológico de Monterrey has being an active participant in each stage of the process by sharing and publishing academic content through the worldwide initiative of OpenCourseWare Consortium (OCW-ITESM, 2008).

This has been accomplished by publishing undergraduate and graduate courses (OCW-ITESM, 2008), by selecting relevant educational resources through the creation and maintenance of a Web catalog of indexed OER, and by fostering dissemination of academic content to those whom may be interested in its use (academy, government, industry, NGOs, communities, people). Lastly, it promotes not only the use of OER, but going far beyond the process of dissemination of knowledge by tailoring it from its source to its application, as OER Content Playlists to promote and facilitate remixing of core components of courses, share new ideas for teaching by creating new topics and course subjects. Some examples are: OER as textbook alternatives (anthologies of educational resources), OER as reusable resource, or OER as a content generated or modified by a learner fostering a culture of “*prosumers*” (producers+consumers).

Some innovative educational experiences that have promoted knowledge mobilization through OER at the Tecnológico de Monterrey towards an educational open practice are:

- a) The adoption of open digital materials from OpenCourseWare universities for formal academic programs in our institution (Contreras, 2008).
- b) Publication of academic content through the OpenCourseWare initiative (OCW-ITESM, 2008)
- c) Digital knowledge dissemination through the initiative called “Knowledge Hub” (currently named “temoa”: [www.temoa.info](http://www.temoa.info)) that provides a public and multilingual catalog of OER, aiming to support the educational community to find those resources that meet their particular needs for teaching and learning through a specialized and collaborative search systems and social tools (Burgos, 2008; 2010).
- d) The application of OER, integrated with e-learning in graduate courses through the use of OER with the creation of anthologies equivalent to textbooks (Ramírez, 2010a). They have also integrated with traditional education systems through the application of OER in the context of the work of students (Burgos and Ramírez, 2010).
  - (d1) The university has developed an institutional repository of OER and mobile learning resources on educational research which is available through a website (DAR, 2010), where these resources are open, free and licensed for use, reuse and distribution;
  - (d2) The use of OER as an anthology of selected resources (content playlist) by the instructor of the course, providing a suitable alternative of textbook for the course (Ramírez, 2010c)
  - (d3) The creation of an open textbook (Ramírez and Burgos, 2010), resulting from case studies/investigations where 120 graduate students implemented OER in their learning environs and documented the impact on their learning.
  - (d4) The creation of OER by the graduate students that designed educational cases for K-12, high school and higher education, as well as open objectives for the formation of teachers in a knowledge based society (Ramírez and Valenzuela, 2010).
  - (d5) OER as content generated or modified by a learner by using the platform of TEMOA. The service “Topics & Courses” allows registered users to create courses, topics and learning activities through the definition of annotated lists with OER, and search queries produced by the user at the catalog (TEMOA, 2011). The lists may be shared as they are published for free use, or could be copied and reorganized by combining specific

elements to create new lists and adapt them to concrete needs of teaching or learning, all while retaining references of attribution to the original sources.

(d6) The OER production in collaborative process with other six Mexican institutions towards the development of educational researchers (Ramírez, 2010b).

(d7) The university has been training its own faculty and undergraduate and graduate students, and also has been training faculty from other educational institutions (K-12 to University level).

Finally, the Tecnológico de Monterrey has conducted research on all these experiences in several aspects such as: use of technology, legal issues about open educational materials, training for using and producing OER and sharing best practices ([www.temoa.info/node/42989](http://www.temoa.info/node/42989)).

Figure 3 shows a practical application by mapping the different experiences that have been taken place at the Tecnológico de Monterrey considering figure 1 to encourage and promote academic knowledge mobilization into open educational practices.

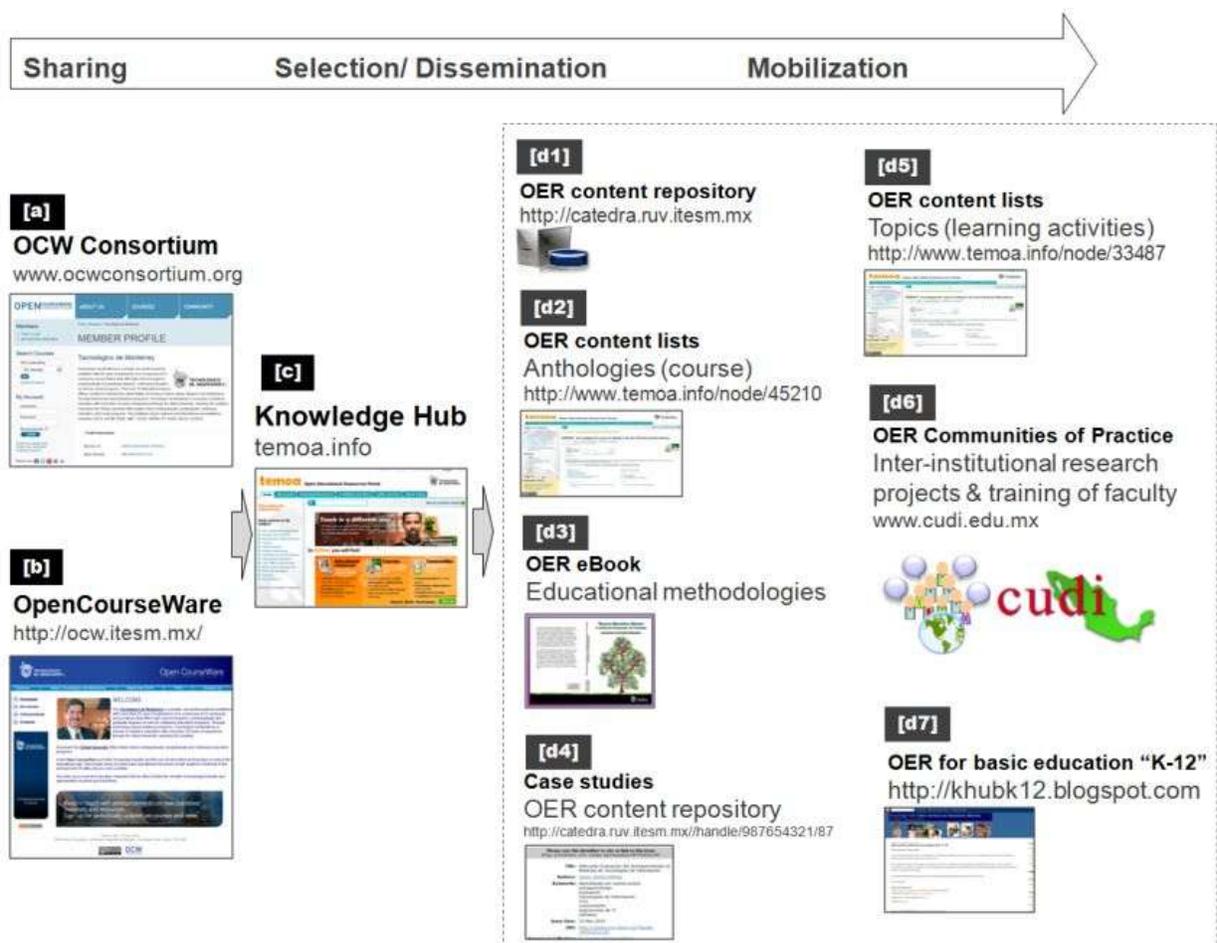


Figure 3. Knowledge mobilization of academic content at the Tecnológico de Monterrey

### Lessons learned and conclusion

A lesson learnt as good educational practice is to promote among the academic community a culture of “prosumers” that, according its definition, is about people whom produce something (product/ service)

for their own consumption (Kotler, 1986). In this case it is educators that produce OER for their own consumption and educational needs. Also some recommendations that could be offered to decision makers to foster new learning environments to prepare educators in a knowledge-based society are to:

- Support and recognize the relevance of OER initiatives at the institutional level (involvement of decision makers and staff).
- Promote a new culture and educational practice to acquire the skills required to exploit fully the use of OER, for example, digital literacy and information literacy.
- Promote a community-based system of open sharing of educational best practices, with the intention of facilitating the effective reuse of OER and learning of significant experiences in the use of OER in teaching and learning activities.
- Clarify and define licensing schemes and mechanisms for the protection of copyright and intellectual property to foster openness of OER, foster its use and ownership of OER.

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## Authors profile



### **J. Vladimir Burgos-Aguilar, MTI, M.Sc**

Full time Liaison Officer of Innovation and Educational Technology at the Center for Innovation in Technology and Education (Innov@TE), and part time Professor at the Graduate School of Education (EGE) in Tecnológico de Monterrey (ITESM).

ITESM, Edificio CEDES, CD117; Av. Eugenio Garza Sada No. 2501 Sur; Col. Tecnológico, Monterrey, Nuevo León 64849. [yburgos@itesm.mx](mailto:yburgos@itesm.mx)

Associate researcher at the Chair of Innovation in Technology and Education at the Tecnológico de Monterrey. Project Manager of the OpenCourseWare (OCW) at the Tecnológico de Monterrey (<http://ocw.itesm.mx>) and the Knowledge Hub OER Catalog ([temoa.info](http://temoa.info)). Bachelor in Informatics at the Instituto Tecnológico de Culiacan, Mexico; Master's degree in Administration of Information Technologies (MTI) and Master's degree in Information Science and Knowledge Management (M.Sc) at the Tecnológico de Monterrey (ITESM). He is co-author and editorial coordinator of two specialized books in the area of "Educational Technology" by Noriega Editores-LIMUSA in 2007 and in 2010 Editorial TRILLAS distributed in Spanish speaking countries (Latin America). Is also co-author and editorial coordinator of a research book in the area of "technology-mediated educational innovation" through the editorial press of the University at Tecnológico de Monterrey. With more than 10 years teaching at graduate level, has a formation specialty in the areas of project management, instructional technology, implementation and evaluation of strategies for information.



### **Maria Soledad Ramirez Montoya, Ph.D**

Full time Professor at the Graduate School of Education (EGE) and Principal of the Chair of the investigation group of Innovation in Technology and education in Tecnológico de Monterrey (ITESM).

ITESM, Edificio CEDES, SS1; Av. Eugenio Garza Sada No. 2501 Sur; Col. Tecnológico, Monterrey, Nuevo León 64849. [solramirez@itesm.mx](mailto:solramirez@itesm.mx)

She made studies in Elementary Education and Bachelor of Science in Education in the Technological Institute of Sonora in Mexico. Concluded graduated studies in Educational Technology and Doctorate in Education and Educational Psychology: Curriculum and Instruction at the University of Salamanca (Spain). She is currently professor at the Graduate School of Education and director of the Research Chair of Innovation in Technology and Education. She is a member of the National System of Researchers in Mexico and participates in the Network of Graduate Studies in Education at the Mexican Council for Educational Research (COMIE), the Research Network of Educational Research (REDIIE) and is President of Applications and Allocation Committee Funds at the University Corporation for Development of Internet (CUDI) in Mexico.