

OER Models that Build a Culture of Collaboration: A Case Exemplified by Curriki

Dr. Barbara Kurshan
Curriki

Summary

This article explores the impact that Open Educational Resources (OER) can have on eliminating the “Education Divide.” Advances in information technologies have created unique opportunities for the free exchange and access to knowledge on a global scale. To this end, a growing number of education organizations and foundations are finding that an open source approach can bridge the educational content gap.

Open Source Curriculum (OSC), which refers to instructional resources and is based on the open source software model, empowers educators to freely exchange ideas and leads to the development of best practices and exemplary curricula. Curriki, an online community for creating and sharing open source primary and secondary education curricula and instructional resources, is a pioneer in applying an open source approach to classroom content and curricula development. Drawing on the social network model, Curriki is advancing a collaborative culture of learning, creating and sharing that is paramount to a networked learning environment.

Committed to the idea that access to knowledge is a basic right for every child, Curriki is a “disruptive change” (Christenson & Overdorf, 2000) that is transforming the traditional model of how content is developed, published, distributed and evaluated. The opportunity exists today to build a sustainable community that empowers teachers that want to teach and students that want to learn with high-quality open source educational resources at no cost.

Keywords: Open Source, Curriculum, Collaborative, Learning, Accessibility, Content, Online Community, Network model

1 Introduction

One of the UN Millennium Development Goals for 2015 declares that all children, everywhere, will be able to complete a full course of primary schooling. Included in this resolution is that girls and boys will have equal access to all levels of education (UN Millennium Declaration, 2000). Improving educational opportunities directly improves a nation’s economy and the lives of its people. The challenge is making quality education universally available to all.

The Internet has contributed extensively to the proliferation of the free exchange of knowledge on a global scale. More recently, Web 2.0, second-generation browsers, better graphics and simulations, and interactive systems have sparked collaboration among networked communities (Atkins et al., 2007). At the heart of the Open Educational Resources (OER) movement is the simple and powerful idea that new technologies provide an extraordinary opportunity to change the curricula paradigm, and thereby to dramatically expand access to quality learning and the free exchange of knowledge (Casserly & Smith, 2006).

2 Open Source - The Solution

The major driver in lowering barriers to access is the “open sourcing” of education. The basic principle behind open source projects is that the community contributes in the development. What is it that makes the efforts of a volunteer community so effective? Virtually every successful open source project has several common elements (OECD, 2007):

- An infrastructure and process that supports collaboration between disparate individuals.
- A community that is energized and motivated to complete, publish, and support their work.
- A critical mass of content that can be used as a base from which a specific community of practice can create an enhanced or customized version exactly suited to their specific needs.

The open source framework is especially conducive to the way people interact online today in the new “Participation Age” (Schwartz, 2005). The Participation Age is about access and sharing, where networks of engaged participants work collaboratively to meet a shared objective. In the process, these networks create meaningful content, connections and relationships never before possible. As an outgrowth of this participation age, a growing number of education organizations and foundations are finding that an open source approach can bring free, high quality educational resources to those that need them.

The OER movement can help educators around the world share appropriate educational tools, resources and best practices that advance their learning and teaching experiences. Ideally, this model must allow educators and learners to contribute back to an ever-growing global knowledge repository of open educational resources. This collaborative format supports OER in what Curriki describes as the 3D model: one that includes the capacity to DEVELOP curriculum through community contributions, DELIVER the curriculum globally and DETERMINE or measure the impact on an individual or project basis, as illustrated in Figure 1.

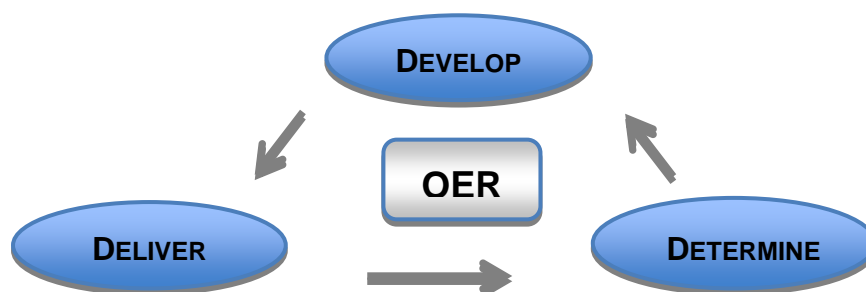


Figure 1. Curriki 3D Model

This active process of building and sharing educational resources by educators supports a deeper level of involvement and understanding of the material. This in turn builds support for creating pedagogical knowledge beyond just an isolated instance, but towards a complete curricular solution (Petrides, 2006).

3 Open Source Curricula (OSC)

The open source framework, for building content, can be applied to any formal instructional design model that creates **Open Source Curriculum (OSC)**, which is defined as an online instructional resource that is freely shared, used, and modified (Wikipedia, 2008). The OSC process invites feedback and participation from developers, educators, government officials,

students and parents and empowers them to exchange ideas, improve best practices, and create high quality curricula. These ad-hoc “development communities” (Wikipedia, 2008) form within the same subject area or around a common student need, and allow for a variety of editing and workflow structures.

In the more common traditional model, educators wanting to implement a lesson have to purchase the material before using it, and licensing restrictions prohibit any modifications or adaptations for specific use. In an open source model, communities of teachers, parents and students can work together to modify lesson plans, textbooks, or full courses and then share them with other learners and teachers, at no cost. This kind of cooperation and knowledge sharing is driving open education as a viable solution to equalizing access to educational opportunities (Atkins et al., 2007).

4 Opening Education in an OER Environment

A central aspect of the OER movement is the opening of education to help people around the world find, share and adapt educational resources that advance their local learning objectives. Ideally, this will enable educators to contribute back to a developing global repository of open education resources. This learning environment centered on a culture of collaboration is exemplified in the Curriki¹ model, built on the principles of: collaboration; assessment and evaluation; and promoting participation.

4.1 Collaboration

Curriki supports an online collaborative environment for educators, learners and committed educational experts to work together to share and create educational materials. Collections of material can be drawn from a wide range of contributors to target a particular learning objective. Facilitated by online collaboration tools and publishing templates, groups and individuals can also modify learning materials and adapt or improve them to further meet the needs of their individual learning community. Additionally, Curriki provides hosting and support for development and localization efforts, including the support of curricula in multiple languages.

4.2 Assessment and Evaluation

Through its open source community, Curriki supports, aggregates and leverages the work of other organizations and individual curriculum developers. Content is provided by members of the community and by content partners. To assure quality, member created content is reviewed and validated by subject matter experts through a robust Curriki Review System (CRS).

In addition, Curriki evaluates the impact and usefulness of the site through independent studies that have shown evidence of the impact and the value of the open education resources model. A case study conducted by the Institute for the Study of Knowledge Management in Education (ISKME, 2008) on how Curriki is engaging the online community found that more than 70% of users surveyed plan to return to Curriki in the future and that finding materials that help to inform their own lesson was the most cited reason for visiting the site. In addition, users indicated that they are taking advantage of what Curriki and OER offer by:

- Sharing Curriki resources with others (38%)
- Contributing resources to Curriki (33%)
- Remixing resources (27%)

¹ Curriki is a nonprofit social entrepreneurship organization dedicated to improving education by empowering teachers, students and parents with universal access to free and Open Source Curricula (OSC). Curriki provides a virtual space for educators to share curricula, best practices, and other teaching resources and work collaboratively to develop new instructional materials. Curriki was founded by Sun Microsystems in March 2004 and became an independent 501 (C)(3) organization in 2006 to accelerate and focus the OSC repository effort.

- Editing resources (27%)
- Supplementing their own content with Curriki resources (20%)
- Connecting to other teachers and learners (25%)

In another research study, conducted by West Chester University in Pennsylvania, USA (August 2008), pre-service teachers used Curriki to create online curriculum. The research project included an assessment of the usability of the Curriki.org site and quality of the training materials. The qualitative data analysis revealed that Curriki is an excellent resource for teachers, students and parents to access open and free educational materials as well as for posting and sharing curriculum ideas. Of the pre-service teachers that used Curriki, the following statements represent their responses to the assessment survey questionnaire:

- 40% agreed that they would use Curriki frequently as a teacher.
- 73% agreed that the Curriki site was easy to use.
- 72% agreed that it was easy to create a new resource on Curriki.
- 57% agreed that they felt very confident with using the Curriki site.
- 41% agreed that as a teacher they would recommend the Curriki site to other teachers.

4.3 Promoting Participation

The Curriki open repository and set of collaboration tools empower educators in a global community of teaching and learning. By engaging educators in a shared curriculum development process, Curriki is seeking to further a new paradigm - one that engages teachers to easily create their own knowledge; these “engaged” teachers, in turn, have more engaged students and more engaged students have improved achievement.

5 A Strategy for Building Open Source Curricula

Curriki’s strategy is to build and support a community that cultivates an Open Source Curriculum movement. Drawing on the social network model, Curriki is advancing the kind of collaborative culture of learning, creating and sharing that is paramount to a networked learning environment.

Facilitated by the website, there are three elements to building this strategy:

- FIND - Build a repository of Open Source Curricula
- CONTRIBUTE - Engage a global community
- CONNECT - Build a community of educators

5.1 A Website

The website, as illustrated in Figure 2, supports community content creation by providing scaffolding such as curricula guidelines and publishing tools. These tools simplify content creation, insertion of appropriate metatags and alignment of content to curriculum frameworks or standards. Other technologies, such as the group tools, support the collaborative development and improvement of the curricula.

Figure 2. Curriki homepage



5.2 FIND - Build a repository of Open Source Curricula

A comprehensive repository of learning assets is fundamental to the model. Curriki's repository supports curricula covering a range of subject areas for primary and secondary levels in areas such as mathematics, science, social studies, language arts, languages and technology. The repository currently features more than 17,000 content assets ranging from individual lesson plans on Romeo and Juliet to complete multimedia courses in math and science. Each asset is contributed under a Creative Commons open content license so the content can be "mixed and remixed". Any ministry or department of education can localize the material in Curriki's repository, to meet their specific educational objectives and frameworks that are relevant to the learning experience of their students. Currently the site is being translated into Spanish, French, Russian, Hindi, Bahasa Indonesia, and Arabic.

Given the open nature of the site a review process is an essential element of the FIND process. This process encompasses quality evaluation and validation, which is a constant challenge in an open source community. On an ongoing basis, content in the repository is selected for a detailed and thoughtful review from Curriki-selected qualified subject matter experts. This process helps members identify learning resources within the Curriki repository and also guides contributors to improve the learning resources they have contributed.

5.3 CONTRIBUTE - Engage a global community

Engaging a global community builds the network to fuel growth. Curriki's website was developed with the goal of supporting and encouraging a deeper level of collaboration among educators in a global, interactive community. This approach not only fosters the exchange of ideas and develops teachers' skills, but it also furthers the educator's relationship with curricula from one of consumer to one of producer.

To promote collaboration among the community, Curriki provides group tools, which allow members to work together on curriculum development efforts in a systematic fashion. The group functions, as illustrated in Figure 3, allow members to use collaborative tools to create and edit instructional materials.



Figure 3. Curriki group tools

5.4 CONNECT - Build a community of educators

Curriki has a two-pronged approach for building a community of educators. First, Curriki attracts individual educators who want to contribute Open Source Curricula by providing unique online tools that streamline the curriculum development process. Second, Curriki is working to secure collaborative agreements and partnerships with Ministries of Education (MOE), for-profit

and not-for profit publishers, graduate and undergraduate schools of education, policy makers, state/regional departments of education, and teacher/parent/school organizations. Involving the stakeholders in the curriculum development process assures that they play a vital role in evaluating and assessing progress towards meeting specified goals for their constituents.

6 OER In Action

There have been many successes in the OER movement, many of which originated from tertiary level resources and distance learning efforts including MIT's OpenCourseWare², the Connexions³ project at Rice University, the Center for Open and Sustainable Learning⁴ at Utah State University, OpenLearn⁵ in the United Kingdom, the Center for Educational Technology⁶ at the University of Cape Town, South Africa, and many others. These initiatives have been successful in part because they have formed a community that promotes the kind of cooperation and knowledge sharing that is paramount to an OER movement. In addition their successes have also been attributed to the reciprocal relationships with partners they have developed and maintained who share the OER objectives and values.

By creating strategic partnerships many new learning communities have evolved to share educational innovations and pedagogical knowledge, beyond the free dissemination of educational tools and resources. One such example is OERCommons⁷, created through the joint efforts of the Institute for Study of Knowledge Management in Education (ISKME) and the Hewlett Foundation, which represents more than a dozen collaborations with OER partners and communities around the world.

Similarly, Curriki is helping to advance OER by working with partners in the US and abroad to develop educational content in multiple languages and to create local federated Curriki sites that support local educational learning objectives. Federated sites are customized to meet the national standards of each country, conforming to educational and language requirements. Learning assets maintained within these sites are linked back to the global repository and accessible by the entire global community of educators. By making content relevant and transferable you eliminate the barriers to implementation of OER initiatives on the local level. Curriki supports the notion that all education is local by adopting a bottom-up and top-down approach that have a fundamental impact on the local community, as well as, all educator communities worldwide. Such projects underway include:

- In India - Curriki's platform will be used as the basis for a teacher portal to host educational content provided by the Premji Foundation.
- In Korea - Curriki is working with the Korean Education and Research Information Services (KERIS) to create a local model for content development and sharing.
- In Argentina - Curriki's website has been translated into the Spanish language.
- In Indonesia - Curriki conducted extensive local teacher-training workshops on developing Open Educational Resources, which resulted in a memorandum of understanding (MOU) to develop courses for pre-service teacher and to create an open source guide for developing open source content.
- In the United States - the state of Wyoming is using Curriki's website to provide middle school Spanish curriculum and instructional materials statewide.

These examples and many other international projects are bringing together a unique and powerful set of alliances across a spectrum of organizations, all dedicated to the mission of eliminating the education divide by making high-quality learning materials freely available to

² <http://ocw.mit.edu>

³ <http://www.cnx.org>

⁴ <http://cosl.usu.edu>

⁵ <http://openlearn.open.ac.uk>

⁶ <http://www.cet.uct.ac.za>

⁷ <http://www.oercommons.org>

educators around the world. By focusing these groups on a common goal of sharing high-quality educational resources with the global learning community, they have the motivation to innovate and develop the OER movement.

7 Conclusion

The advancement of the open educational movement represents a paradigm shift to a participatory culture of learning. At the center of this movement is the powerful idea that access to knowledge and tools for learning is a basic right for every child. To realize this “big idea,” Curriki and others in the OER movement are completely rethinking the traditional model of how content is developed, published, distributed and evaluated. By leveraging the power of open source communities, OER supports collaboration and participation through a global community of educators and learners that create, use, edit, extend, and share resources with one another.

As the OER model continues to evolve and expand, Curriki and other initiatives will have to address the challenging questions that this innovative approach to educational content generates. These questions include:

- ***How open is open for education?*** Standards and governance drive education policies. These policies inherently impose limitations on openness, by discouraging innovation and change. Finding a balance between the need to align to standards and a desire to customize content will be a fundamental challenge to the OER movement.
- ***Can you build high-quality curriculum collaboratively?*** New models of instructional design are now defined by collaboration and participation, whereas institutional governance led older models. Given the fundamental shift this change represents, will educators and teachers participate in this new process”?
- ***Can you trust the community?*** Experts in the form of publishers and administrators have historically been the source of curricular material. If the community is now the expert, a whole new definition of validation and review is required.

Through a scaffolded model of support, Curriki and others in the movement are seeking to provide the infrastructure to let the community collaboratively answer these questions.

Around the globe, technology has enabled us to democratize the development and distribution of learning materials like never before. The opportunity exists to empower every teacher that wants to teach and every student that wants to learn with high-quality educational resources at no cost.

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Author



Dr. Barbara (Bobbi) Kurshan
Executive Director
Curriki
bkurshan@curriki.org

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Edition and production

Name of the publication: eLearning Papers

ISSN: 1887-1542

Publisher: elearningeuropa.info

Edited by: P.A.U. Education, S.L.

Postal address: C/ Muntaner 262, 3º, 08021 Barcelona, Spain

Telephone: +34 933 670 400

Email: editorial@elearningeuropa.info

Internet: www.elearningpapers.eu