



**Curriki - Global Education & Learning Community**  
***Bringing Curricula into the Participation Age***

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When assessing the quality of life of an individual, or the economic condition of a nation, one fact stands out – education makes a measurable and positive difference. Quality learning requires access to quality curricula that include defined learning objectives, scope and sequence for instruction, lesson plans, instructional materials, teacher training and student assessment.

Unfortunately, quality learning and the infrastructure to support it are not universally accessible. Typically, the affluent of the world have access to high quality education and a corresponding high standard of living. However, a far larger number of people who live in rural or impoverished areas have little or no education available to them.

Thus, an unacceptable gap in learning opportunities exists, and viewed from an international perspective, this “Education Divide” looks as vast as the Grand Canyon. Globally, the numbers are staggering. Around the world, more than 100 million children do not have access to a primary school education.

Even in the inner cities and rural areas of the United States, the lack of qualified instructors and sufficient instructional materials, such as a textbook for each student, has a profound negative impact on graduation rates, health and crime. Almost 40 percent of students in the lowest socioeconomic quartile drop out of school, and the costs to the individual and society are monumental. An estimated 67 percent of prison inmates nationwide are high school dropouts.

In developing its “Millennium Goals,” the United Nations recognized the global necessity of education, and the socioeconomic cost of the lack of it. The UN urged people around the world to ensure that, by 2015, every child is able to complete a full course of primary schooling. Improving educational opportunities directly improves a country’s economy and the lives of its people. The challenge is making quality education universally available to all.

Quality learning requires access to quality curricula that include defined learning objectives, scope and sequence for instruction, lesson plans, instructional materials, teacher training and student assessment. Today, textbooks are the primary form of instructional materials used in a curriculum. The U.S. spends about \$5 billion on textbooks each year, up from about \$2 billion in 1991. These costs are continuing to rise, not only in the U.S., but all over the world.

With the advent of the Internet, we now have a unique opportunity to change the curricula paradigm, and thereby to dramatically expand access to quality learning while reducing the cost.

The Internet has proven to be the great world equalizer. It has eliminated a number of economic and structural barriers to both the free exchange of knowledge and access on a global scale. First e-mail, then web publishing and more recently hosted applications and web-based “Marketplaces,” “Groupware” and “Social Networks” have provided never-before-seen opportunities to collaborate on the development and delivery of intellectual assets on a global scale. The relationship between authors and publishers is changing, as the Internet democratizes who can share his or her work. Now a publisher is anyone with access to the network and not exclusively those with access to the capital intensive means of print publication.

### **Open Source and the Participation Age**

A major driver in lowering barriers is “open source.” Free/Open Source Software (FOSS), for instance, has transformed the software industry. The basic idea behind open source software is simple: when developers can read, redistribute, and modify the source code for a piece of software, the software evolves. For example, the Gnu/Linux operating system, the Apache Web server and the OpenOffice desktop application have all proven to be world-class software.

These examples have also provided a successful model for how online communities can organize and govern themselves, evaluate and improve their products, and grow in size and influence. A community of people can fix, improve or adapt something at a speed that, compared with the pace of conventional development, can be astonishing.

Virtually every successful open source project has several common elements:

- An infrastructure and process that enable disparate individuals to collaborate on development.
- A community that is energized and motivated to complete, publish and support the work.
- A critical mass of content that can be used to create an enhanced or customized version suited to the specific needs of a specific community member or locale.

The open source model directly correlates to the need in education for a common infrastructure to link students and the teaching community with best materials for and practices in instruction. More recently, the potential to apply this community development approach to educational content has been demonstrated by Wikipedia, a free and open source encyclopedia.

The open source framework is especially conducive to the way people interact online today in the new “Participation Age.” The Participation Age is the successor to the Information Age, where economic value was generated by controlling the creation, distribution and use of proprietary information. In the Information Age, the proprietary nature of the intellectual property required users to purchase restrictive use rights or “reinvent the wheel” for unrestricted use. The Internet has enabled the Participation Age and has seriously challenged this proprietary control. The Participation Age is about access and sharing, where networks of human beings interact to solve problems, creating meaningful content, connections and relationships never possible before.

To this end, a growing number of education organizations and foundations are finding that an open source approach can fill the education content gap. Many are leading and supporting the development of Open Educational Resources (OER) that further provide stimulus to building network access.

To date, these efforts have developed educational resources that provide a specific or point solution. For example, Wikipedia provides a free and open source encyclopedia. Its sister site, Wikibooks, is developing open source textbooks. However, Wikibooks is not focused on K-12 and does not address the full complement of curriculum resources. Both are valuable educational resources, but do not provide a complete curricular solution.

Good examples of Open Source Curricula exist at the local level. Because these isolated instances are not well publicized or disseminated globally, their excellence is not leveraged, and many hours of development time on nearly-identical projects are wasted by “re-inventing the wheel.” Many OERs exist in silos of expertise and are difficult to find or use. Educational organizations that have created OER sites tend to be at the university level or regional level, and are limited to specific subject areas or restrict access to specific audiences.

For example, California Open Source Textbook Project (COSTP) is developing a World History textbook in conjunction with Wikibooks. This OER will be aligned to California standards of learning and will be available only to teachers in California after it has been approved for California public school adoption. COSTP plans to use content that has some IP rights reserved (is not truly open) and to charge a fee to users outside of California.

***Though it will require a sustained and persistent effort, the time is now to begin building a community among those who can contribute or teach and those who want to learn, to freely share and support universal access to quality curricula. Development of an extensive repository of Open Source Curriculum is the key to eliminating the Education Divide and providing universal, equal educational opportunities.***

## **Bringing it All Together: Curriki - Global Education & Learning Community**

Curriki - Global Education & Learning Community is the first all-embracing Internet site instituted to develop, aggregate, evaluate and support the best of Open Source Curriculum. Curriki is the only site to develop this complete Open Source Curriculum solution based on a comprehensive curricular framework that includes defined learning objectives, scope and sequence for instruction, lesson plans, student activities, instructional materials, teacher training and student assessment of mastery.

Curriki's mission is to empower people worldwide through Open Source Curriculum and to eliminate the Education Divide by moving learning into the Participation Age.

Curriki was founded by Sun Microsystems in March 2004 as the Global Education & Learning Network. In 2006, Sun created an independent 501(c)(3) organization to accelerate and focus the Open Source Curriculum repository development effort. Curriki was initiated as a result of the stated need of over 20 Ministers of Education around the world for cost-effective, online curricula and is supported by educational luminaries who believe in universal access to education.

Curriki provides an online repository where anyone, anywhere, students or teacher, can contribute to and/or access quality learning materials. The initial focus is on K-12 curricula in the areas of mathematics, science, technology, reading and language arts, and languages. This interactive and open repository empowers and enables people everywhere to learn and teach.

To foster global educational opportunities, Curriki believes the optimum solution is to become the best source for world-class learning – quality curricula, just a click away. Curriki's approach represents a paradigm shift in curriculum development, distribution and evaluation that is represented by its 3-D model:

- Develop curriculum through community contributors
- Deliver the curriculum globally
- Determine the impact by project and by individual

### **Develop Curriculum through Community Contributors**

Curriki is a pioneer in applying an open source approach to curriculum development. Only a few governments and decision-makers have thus far embraced the open source approach to curricula, although many have expressed support for open standards. Many existing sites that are exploring this model include proprietary content and restrict access to a select group.

Through its open source community, Curriki will support, aggregate and leverage the work of other organizations and individual developers. Curriki will promote the opportunity to collaborate online in developing curriculum and will provide unique online tools to streamline and support the development process. Curriki will also provide hosting and support for development and localization efforts including the support of curricula in multiple languages.

## **Deliver the Curriculum Globally**

Delivery also poses distinct challenges for Open Source Curriculum. The same dynamic that has local school officials continually recreating content applies here. Finding trusted resources on the Internet is difficult.

Curriki intends to meet this challenge by being a “one stop shop,” a single repository of validated curricula and learning objects. The organization will support, aggregate and leverage the work of other organizations and individual developers. Subject matter experts will review and comment on the curricula with local education administration support, and the curricula will all be freely accessible through a single, well-publicized website.

## **Determine the Impact**

What determines the success of Open Source Curriculum? How is quality controlled? These are important considerations around the world as Open Source Curriculum advances education.

Curriki is developing a research-driven model that applies metrics to quantify what improvements in individual and group learning outcomes are necessary for success. By researching “what makes the best curricula and why,” and disseminating that information widely, Open Source Curriculum effectiveness will be continuously improved.

## **Curriki’s Strategy**

Curriki will build and support a community of contributing educators, students and developers to create an Open Source Curriculum repository. The community forum will evolve and foster the exchange of ideas among students, parents, developers and educators from all parts of the globe. Assessment will be available to students and parents to monitor progress and performance. Curriculum developers will be able to get the community’s feedback and evaluation of their work, as well as ensure that the content meets accreditation standards for the relevant regions.

There are four elements to Curriki’s strategy:

- Create a website repository
- Build a community of educators
- Build a repository of Open Source Curricula
- Engage a global community

## **Create a Website Repository**

Curriki’s interface, with its many constituencies, will be through a website, based on a robust, open technology infrastructure that will enable and support community, foster collaboration, and adhere to open standards. The website will support community content creation by providing the following: curricula guidelines, publishing tools to simplify creating content and inserting metatags, assessment, and support for alignment

to curriculum frameworks or standards. Other technologies such as bulletin boards, blogs and podcasts will be used to foster collaboration between contributors and users of the content to improve the curricula. The Curriki curricula can also be used as the basis for creating localized versions.

## **Build a Community of Educators**

Curriki has a two-pronged approach for building a community of educators by 1) providing unique, time-saving online curriculum development tools as well as validation research and user feedback, and 2) obtaining localization and implementation agreements from departments and ministries of education, as well as policy makers to ensure the sustainability of the program.

First, Curriki will attract educators who want to contribute Open Source Curriculum by providing unique online tools that streamline the curriculum development process, by promoting the use of each curriculum project, by making research available to validate a curriculum project, and by offering a multi-step feedback loop: (1) Define objectives; (2) Define pedagogy; (3) Define components to be in the course; (4) Search repository for content (viewable or editable); (5) View, create, edit; (6) Community review; (7) Publish/Collaborate; (8) Test effectiveness; (9) Continuous loop back to step one, to monitor the impact of their work on student learning.

One such online tool is the Textbook Builder, which will enable a new paradigm for textbook development. This Textbook Builder will be focused on the group collaborative development of textbook assets. It will have features to allow a group of teachers or professors to take a curriculum framework and use the embedded features to create and edit a book map, sections and pages of an instructional textbook using online, real-time editing tools. Version control and editorial workflows will be used to manage the collective effort of the community and to control editorial intent, process and schedules. This robust tool will accelerate the population of the repository and will make Curriki the site of choice for Open Source Curriculum development.

A second set of development tools, the Currikulum Builder, will complete the community support system for curriculum creation and will include publishing tools, curricula guidelines, support for alignment to standards of learning and curricula frameworks, and learning and content management systems. The Currikulum Builder will enable developers and users to share and create lesson plans, course syllabi, learning activities, scope and sequence hierarchies, and to align and compile assets into collections, courses and learning objects. In addition, it will have features for facilitating group activities, discussions, processes and workflows related to the instructional design process.

For example, a sophisticated instructional design process might go as follows: a group of department or Ministry of Education officials in a particular locale develops their curriculum guidelines using Curriki tools. It does this using a local community of teachers to collaborate on the development of the list of skills to be taught and performance expectations to be measured and met. It then creates or selects and revises source materials into a course collection of learning objects aligned to its

curriculum framework or standards. This “Package” is pilot tested in two schools as a controlled study, and improvements are made online. The improved curriculum is re-released, and this process continues until all of the schools have migrated to using the new and now continuously improving curriculum.

Educational research will be supported by Curriki to evaluate and certify what works based on global, regional and local outcomes. Editorial comments will be developed by Curriki’s Chief Academic Officer along with community educator members to guide students, teachers and parents the best application of a given curriculum or resource. Organizations providing teacher professional development will be provided with resources for teacher training on how to use a curriculum. Teachers and parents independently seeking guidance will also have browser-based access to these professional development resources.

Assessment and accreditation tools and learning and content management systems will be developed or contributed to the repository by community partners. Bulletin boards, blogs and podcasts will be used to foster collaboration among and between contributors and users of the content. Ultimately, the community will drive the process of accrediting all content at all levels.

The second prong of the approach to attract educators to the community is to work with Ministries of Education (MOE), policy makers, state departments of education, large retired teacher organizations and school districts to secure implementation commitment agreements with Curriki. An implementation commitment would include an agreement from the agency to localize the content to its area and to validate the accreditation of all material for its locale, as well as the alignment to the curriculum or standards of learning for the area. Implementation commitments will include teacher professional development and ongoing teacher and student mentoring.

### **Build a Repository of Open Source Curricula**

Curriki’s website will support curricula covering a range of subject areas, initially for K-12 in areas such as mathematics, science, technology, reading, language arts and language. It will initiate and develop collaboration with universities and organizations that address curriculum development, evaluation and open source technology. All educational content meeting Curriki’s criteria will be cataloged and included in the repository.

Curriki intends to be the “one-click stop” for the best world-class learning. Building on the infrastructure of the Java.net community, Curriki community projects and registered developers, teachers and other users are growing exponentially. Some of the projects are developing free and open source tools for teachers, including grade books, embedded learning objects and assessment tools.

Since the textbook is the most common and easily understood method for presenting instructional materials, Curriki will provide an online format for curricula development that is textbook-centric. Curriki’s repository will offer easy access to online materials that can be localized by ministries or departments of education. As every education

agency, even in the more rural and impoverished areas, has a printer and paper for reproducing and distributing the materials, online access at the student's desk will not be necessary. Therefore, only the bare minimum technology requirement is needed to benefit from Curriki's repository.

Anyone throughout the world with access to the Internet will be able to guide themselves or others through a logical progression of modularized learning to master a discipline, such as algebra, reading readiness, physics, or English grammar. Users will be able to access curriculum online, print it, and/or save it to a CD. The repository will be designed to allow a user to access either the entire curriculum or a specific learning object within a curriculum, such as an assessment or a chapter in a book.

To expand its repository, Curriki will identify, aggregate and support existing sources of open resources. Curriki will be responsible for evaluating curricula, content, assessment and tools. There will be three levels of curricula. The highest level of curricula will be that which independent researchers or government ministries have previously evaluated and found that it meets the standards or national requirements. The second level will be a curriculum that has received some evaluation and feedback by Curriki community or by the education community. The last level will be a repository for all content which may not be evaluated or initially approved by the community. Here, contributors can seek feedback or assistance in meta-tagging their content. Where voids in the curricula exist, community contributors will be encouraged to fill the gaps.

### **Engage a Global Community**

Curriki's website will foster the exchange of ideas among students, parents, curriculum developers and educators in a global, interactive community. The website will provide guidance to teachers, students, and parents on the appropriateness and the best application of a given curriculum or resource. Assessment tools will be available to students and their parents to monitor progress and performance.

Building on the efforts of others in Open Source Curriculum, Curriki is becoming a community of communities. Curriki will increase awareness of its resources through the following marketing strategies:

- Focus public relations activities on publications that speak to each audience – internationally, regionally and locally.
- Participate in high-profile global events that establish thought leadership and raise awareness of Curriki in the Open Source Curricula arena.
- Partner with key governmental agencies and educational organizations that bring educators to Curriki.
- Sponsor low-key, local user group meetings that leverage and connect grassroots evangelists to build loyalty and enthusiasm.
- Develop and aggregate easy-to-use community resources including development tools, online forums and discussion groups.
- Support highly branded curricula projects that drive usage and awareness.
- Increase end user reach through robust Internet placement with search engines.

Viral growth in education takes time and nurturing – there is no spontaneous combustion. It will take sustained dedication to build a repository of world-class curricula. It takes time for a curriculum to be tested and improved by early adopters. It takes time for the early majority to witness and comprehend the value of a new curriculum. Word of mouth spreads in annual increments, as student progress is substantiated by research and word of mouth.

The business model of the Participation Age—that is, one built around collaborative development, open source, open architecture and creative commons—is already proving to be sustainable. This model offers significant advantages over other existing content creation and distribution methods, as it has no profit motive, and can change and adapt quickly – for the benefit of all involved.

## **Conclusion**

Delivering open content in a cost effective and sustainable fashion is critical to success in eliminating the Education Divide. By engaging students, parents, developers and educators in this global, interactive community, Curriki is a focal point for the “open sourcing” of education. Developing effective partnerships with Ministries of Education, policy makers, content developers, and content providers, Curriki is building a learning community of student users, parents, educators, and contributors, both inside and outside the classroom.

It is clear that open source methodologies have been essential to the Internet revolution and to the explosion in technological advancement. Curriki will build on these two fundamental and growing forces. It will augment the value of all the work done earlier by others by providing a curricular framework and context for open education resources and aggregating and creating Open Source Curricula and development tools.

***Curriki will be a digital crossroads for those who want to teach and those who want to learn. Together we can eliminate the Education Divide. Freely sharing through community is the right thing to do for educating an increasingly interdependent global population in the Participation Age.***

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