OER State Policy in K-12 Education:
Benefits, Strategies, and Recommendations for Open Access, Open Sharing

iNACOL
International Association for K-12 Online Learning

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Introduction

Today, states are collaborating in more ways than ever on the goals of college and career readiness building on the Common Core State Standards (CCSS). This guide is meant to help educational institutions and state governments understand the benefits of fostering deeper learning and personalized learning through open educational resources (OER).

Open educational resources (OER) are learning materials licensed in such a way as to freely permit educators to share, access, and collaborate in order to customize and personalize content and instruction.

By sharing publicly funded learning materials as OER, we can move away from "re-creating the wheel" in all 50 states and territories, enabling sharing and collaboration with learning materials, resources, and professional development. Maximizing state, district and school resources in sustaining an environment of sharing and collaboration, this guide is meant to share bellwether state examples and recommendations as a guide for policy makers.

While specific recommendations are made at the end of this document, there are key principles to consider in enabling sharing of learning materials:

- Emphasize that materials created by state, regional, or local entities using public funds will hold an open license for sharing, collaboration, and access for all educators and students.
- Allow states with instructional materials lists to include OER.
- Allow instructional materials and other funding to support development, maintenance, and infrastructure for OER and technology infrastructure with flexible uses of funding.

Open educational resources can be a solution to many areas of work that states are engaged in today. Some of these areas include moving to prepare students for college and careers through benchmarks via the Common Core State Standards (CCSS), better integrating their systems of curriculum, instruction, assessment, data, and technology, and focusing on the need to innovate and personalize learning to better engage students and lead the transformation toward student-centered education systems.

Today's textbooks are obsolete and the acquisition process is broken. The use of OER is a solution that permits delivery of customized content to students much faster and more cost effectively than the current system allows. Open and public domain licenses for educational content that is developed with public funding will provide students and educators with increased access to the information they need to succeed and enable public access to publicly funded educational materials for sharing.

Schools in all 50 states are engaged in using educational content that is both open and licensed by a third party—this is not an "either/or" situation. The benefits of sharing open materials needs to be better understood as a key strategy to maximize every dollar of public funds spent for public learning materials. Both curated published materials created by third parties (including copyrighted content) and openly licensed materials are important in building new instructional materials models for personalization. Curated repositories of content should include both open and third-party content—and both need to be reviewed for quality and alignment with standards. With openly licensed content, there are benefits for public education as educators can access a range of materials, share, and collaborate around OER for personalization.

This means policy makers can help by ensuring in instances where public funds are used for the creation of public learning materials, (grants, title programs, statewide or local educational initiatives) policy should ensure that learning materials *created* with public funding should, use an open license, and/or be placed in the public domain for sharing.

> Open educational resources (OER) are learning materials in the public domain that permit educators to share, access, and collaborate in order to customize and personalize content and instruction.

What are open educational resources?

OER refer to "educational materials either licensed under open copyright license or in the public domain" (Wiley, Bliss, & McEwen, in press). Public funds used to create public learning materials should be made open for sharing across schools in the public domain. The ability to share, collaborate, and access OER make them an attractive option for educational institutions and state agencies.

Open educational resources (OER) include items such as courses, course modules and materials, e-textbooks, streaming video of classroom lectures, professional development, rubrics, assessments, tests, software, and any other tools, or techniques used to transmit knowledge that have an impact on teaching and learning that are openly licensed for sharing and free use. Open educational resources also include born-public-domain works, such as those produced by the public sector, federal and state governments.

The Common Core State Standards (CCSS) are being adopted in 45 states and 3 territories. In order to fully realize the potential of the CCSS, new curricula and new assessments aligned with the standards are vital. As states engage in the creation and adoption of CCSS-aligned textbooks, instructional materials, professional development, rubrics, and other materials in support of CCSS, how can policy makers rethink how to share, collaborate and access instructional materials to meet the needs of a 21st century classroom?

There is an opportunity to formulate and implement new policies related to textbooks and instructional materials with the potential to make a real difference in K-12 education by shifting to learning materials that can provide personalization and can be shared for collaboration across schools, districts, and states implementing the CCSS and beyond for deeper learning. Specifically, policies related to OER are currently being adopted in several states to help address the challenges related to K-12 instructional materials, including adoption of the CCSS.

To date, 66 governments throughout the world have adopted or proposed policies related to OER at some level (OER Policy Registry, 2013). In this guide, we describe the benefits of OER, present several OER policy models in K-12 education, discuss barriers and opportunities related to OER policy creation and implementation, and provide a list of strategic policy recommendations.

Benefits of OER

OER offer a number of specific benefits to states and other education stakeholders as they develop and implement new instructional materials and other content, including (a) collaboration and partnerships, (b) increased knowledge sharing, (c) cost savings and efficiency, (d) quality improvements, (e) support for independent learning, and (f) communications and community engagement.

Collaboration and partnerships

As described above, OER provide a foundation to allow multi-state or district collaborations. Importantly, they also create powerful partnering opportunities at the classroom level by enabling educators to develop, share, and access quality OER to meet their students' unique requirements and needs.

Knowledge sharing

OER enable knowledge sharing for the benefit of *all* students and educators by widening access to high-quality resources. Knowledge sharing and improved access to resources in turn encourage college and career readiness and boost human capital through better education. OER also bridge the gap between formal and informal learning (widening access to quality material outside the classroom) and promote lifelong learning.

Cost savings and efficiency

By sharing and reusing content, the costs for content development can be cut allowing for better use of available resources. These savings are particularly important given the limited budgets of states, districts, and schools. OER maximize and best leverage taxpayers' investments by allowing free sharing and reuse of resources developed by publicly funded institutions. OER also eliminate delays associated with securing permission to use existing digital materials by allowing educators to freely use open materials without having to secure author permissions. OER can also leverage the unique aspect of digital assets by reducing the marginal cost and effort of making copies and distributing learning resources. The minimal funding for professional development and training to develop content can be far less than the recurring costs for printed materials.

Quality improvements

The quality of OER improves over time by enabling continuous improvement of online and other digital learning resources by professional peers that are curated and vetted for alignment to state academic standards. The ability to continuously evaluate and update digital OER starkly contrasts with traditional materials that typically have to be used by students until the end of a purchasing cycle, even if the material includes significant errors or omissions. OER also enable a web-based, viewable, useable record of quality educational materials. Open licenses expand student access to high-quality, up-to-date, engaging, and customized content more quickly, cost-effectively, and efficiently than ever before. In Virginia, a high school physics textbook with an open license was conceptualized, collaboratively developed by experts, vetted, and placed in students' hands within six months. This is six to ten times faster than the three to five years officials were told would be necessary under the typical system.

Support for independent learning

OER help students to (a) access additional learning resources, (b) enhance supplemental materials in support of academic plans, (c) become better prepared, (d) engage in independent learning, and (e) pursue learning aligned with personal interests. OER also offer students access to high-quality materials that may be more engaging and in sync with their own interests. Open educational resources are a pathway forward to ensure every student has access to high-quality, engaging, personalized, and up-to-date content.

Communications and community engagement

OER development initiatives showcase district, school, and teacher leadership in content creation and customization. The materials serve as a tool for engaging with students, parents, and communities and highlight the opportunities available to students who learn through open content.

Bellwether States: Examples of OER Policy Models

Several states have recently enacted policies related to OER. While these policies vary in their scope, they highlight the potential to policy makers for positively impacting the cost and quality of instructional materials in K-12 education for students, teachers, and schools. In this section, we highlight the OER policies of five states: Washington, Virginia, Utah, Texas, and Maine. Table 1 contains a list of all states that currently have or have had OER policies or initiatives in the past at any educational level.

Creation of Open Educational Resources

Washington

The most progressive law related to open educational resources in K-12 education was passed in Washington State. Here legislation was enacted to fund the development of an open course library aligned to the Common Core State Standards (Regarding Open Educational Resources in K-12 Education, H.B. 2337, 2012). The goal of the library, as stated in the law, is "to provide students with curricula and texts while substantially reducing the expenses that districts would otherwise incur in purchasing these materials. In addition, this library of openly licensed courseware will provide districts and students with a broader selection of materials, and materials that are more up-to-date" (p. 1). Of significant importance to this legislation is the financial support afforded toward the implementation of the policy: nearly $1 million over the next five years to fund full-time staff to oversee the development of the library and promote OER adoption. The law also permits a temporary reallocation of existing instructional materials funds to be used to support the development and implementation of the open course library.

Currently, the Office of Superintendent of Public Instruction (OSPI) has used funding from H.B. 2337 to hire a full-time staff member to oversee the K-12 Open Course Library. Initial activities, including organizing an advisory committee and outlining a detailed plan for development and implementation of the library, are now underway. The estimated positive fiscal impact of the Washington open course library is enormous. If just one open textbook in each grade (9–12) were developed and adopted next year, the state of Washington would save an estimated $6 million, even accounting for textbook adoption cycles. A similar library was developed in Washington for its community college system in 2010, with nearly 40 textbooks developed for the highest enrolling courses. Caswell (2012) described this initiative in some detail and also provided evidence of indirect cost savings to the state.

Virginia

The Virginia legislature adopted a policy that clarifies intellectual property rights for state employees. This legislation permits state agencies and employees to release potentially copyrightable materials produced with public funds under an open license (Patent and Copyright Policies, H.B. 1941, 2009). This policy has enabled the development of an open physics textbook that provides students with more up-to-date scientific information.

Virginia has also created the VA Open Education Curriculum Board with authority to designate Open Education Consortia. The Board sets standards for submission of educational materials and subsequent licensing of educational curricula developed by the Consortia.

Utah

The Utah State Board of Education, led by the efforts of then-State Superintendent Larry Shumway and OER advocate David Wiley, approved an administrative rule to the same effect as that seen in Virginia, but with language specific to educators and schools as employees and agencies of the state, respectively (Sharing of Curriculum by Public School Educators, R277-111, 2009). The purpose of this administrative rule was to clarify the State Board's position on teacher use of instructional materials and copyright laws. The rule explicitly allows for open licensing of materials created by state employees using public funds and gives copyright ownership to the content creator.

The OER policy in Utah has facilitated the development of several OER initiatives currently underway in the state. Specifically, Utah has authorized and supported an online charter high school, Open High School of Utah, with a mission to use innovative technology, service learning, student-centered instruction, and personal responsibility to empower students to succeed. One of their goals is to provide open courses, and Open High School of Utah is developing and sharing their curriculum exclusively as OER. Moreover, the State Board is promoting and facilitating a multi-district collaborative to develop open textbooks in several high school subjects. Utah plans to extend this effort to more subjects and grades.

Updating Instructional Materials Adoption to Include OER

Texas

The Texas legislature, led by the efforts of Rep. Scott Hochberg, adopted policy giving authority to the Commissioner of Education to include open educational resources and other digital resources on the official list of approved instructional materials (Relating to Open-Source Textbooks and Other Instructional Materials, H.B. 2488, 2009). In addition, the bill allows for content developed by faculty at research universities in Texas to automatically be placed on the vetted list of approved materials for high school and junior high school students, presumably providing an incentive for faculty and institutions to develop content. H.B. 2488 does not stipulate that such content must be openly licensed, but the option to do so is retained.

Texas has also defined "open source textbooks" as a new category of materials that the state will include in their state adoption process for curricular materials, or even purchase. However, the policy does not require that purchased "open source textbooks" be openly licensed. They could be resources that are contracted for by the state, which would then own, distribute, and license them in any legal manner. It is unknown whether this policy has led to the adoption of more OER in Texas public schools. It is interesting to note the Connexions project at Rice University is a leader in the OER movement in higher education and has some K-12 open educational resources in the repository.

Increasing Access to OER for Personalizing and Customizing Learning

Maine

In Maine legislation was recently approved that mandates the creation of an information clearinghouse on the use of online and open educational resources, among other programs (To Support and Encourage the Use of Online Textbooks, L.D. 569, 2011). This legislation also includes approval for the state Commissioner of Education to allocate existing funds to hire or reassign several staff positions to oversee and support the clearinghouse and other digital literacy programs outlined in the law. To fund this legislation, Maine has dedicated some of its EETT Title-IID funds to (a) the identification and the development of quality review processes and (b) the use of OER and the development of professional development to support use in eight academic areas.

Table 1. Summary of OER Activities in Eight States

K-12 Open Educational Resources State Initiatives

The following states have enacted legislation or directed funding toward OER initiatives. This list does not include states that have reallocated textbook funding to electronic resources and/or hardware, which also relates to OER usage.

STATE	DESCRIPTION	WEBSITE
California	In 2009, Governor Arnold Schwarzenegger of California launched the Free Digital Textbook Initiative, calling for free and open high school math and science textbooks that align to California content standards. Initially, 20 textbooks were submitted for review, and of those, 10 met at least 90% of state content standards.	www.clrn.org/FDTI/index.cfm
Florida	Florida Department of Education, in 2008, was the first State Education Agency to adopt an OER policy with its approval of FreeReading for the supplemental reading programs list.	www.freereading.net
Maine	Maine has dedicated some of its EETT Title-IID funds to 1) the identification and the development of quality review processes and 2) the use of OER and the development of professional development to support the use in eight academic areas.	www.maine.gov/education/ nclb/tiid/arra/ www.syntiro.org/oer http://maine.edc.org/file.php/1/oer/math.html
Maryland	Maryland is using some of its EETT Title-IID funds to assist systems in increasing teacher and student use of OERs in classroom instruction and to determine the cost-effectiveness of using open-licensed resources. This project includes the creation of an open source Learning Object Repository, developing meta-tagging conventions, and creating professional development.	
Oregon	Oregon has funded the Oregon Virtual School District as a program that seeks to increase access and availability of online learning and teaching resources, including OER, free of charge to the public school teachers of Oregon.	www.orvsd.org

STATE	DESCRIPTION	WEBSITE
Texas	Texas has defined "open source textbooks" as a new category of materials that the state will purchase. These "open source textbooks" would be recommended and approved by the commissioner, rather than by the state board as has been traditionally the case. [Note: The current rules state that "open source textbooks" are not necessarily open licensed. They could be resources that are contracted for by the state, which then owns them and may distribute and license them as they choose.]	http://ritter.tea.state.tx.us/textbooks/CommissionersList/
Utah	Utah has funded an online charter high school that is sharing their curriculum as OER.	www.openhighschool.org
Virginia	In 2008, the Commonwealth of Virginia issued a Request for Collaboration to create an open physics textbook, partnering with the CK-12 Foundation, in order to provide more up-to-date science information. These materials are supplemental, since they primarily address topics not found in the state standards. Virginia has also created the VA Open Education Curriculum Board to designate Open Education Consortia and set the standards for submission of educational materials and subsequent licensing of educational curriculum developed by the consortia.	www.ck12.org/flexbook/book/735

Barriers and Opportunities

While the policies we have just described are good examples of what some states are doing to take advantage of the benefits of OER, there are still several barriers to OER policy development and implementation that policymakers should consider.

There are at least two main barriers to OER policy implementation: (a) lack of funding to support OER development and oversight, and (b) lack of funding for marketing and promotion of OER. In the first case, several of the OER policies described above have not been implemented as quickly or as widely as possible because the state agencies charged with policy implementation have lacked the experience, staff, and support necessary to lead OER initiatives. For example, in Washington, funding has been set aside for one staff member to oversee the OER library, but even some policymakers there acknowledge that the current funding allocation is inadequate to move the project forward either quickly or widely.

The second barrier to OER policy implementation relates to the differences between how OER developers promote their content compared to how traditional publishers market their materials. In general, funding for OER is dedicated to content development with little remaining for marketing and outreach. In Texas, the OER community, or those content developers openly licensing their content, have done little to inform potential schools and district buyers in the state that openly licensed (and generally freely available) high-quality content is available. In fact, not a single OER developer has yet attempted to get content on the Texas "approved instructional materials" list. One potential solution to this barrier from a policy standpoint is to allocate funding for the greater promotion and awareness of open content and professional development related to OER use and adoption.

While barriers certainly exist, we acknowledge there are also many opportunities for OER policy creation and implementation to provide more efficient and effective government practices when considering content and instructional materials. In particular, the adoption of the Common Core State Standards by 45 states and territories provides a chance for governments to reconsider their sources and strategies around instructional materials. There is currently a great need for CCSS-aligned content, and the OER community has begun to produce it. States should consider policies that will make it easy for their schools and districts to vet and adopt such content. In addition, efforts are underway to organize a consortium of states to participate in a collaborative effort to develop even more CCSS-aligned OER. Policies favorable toward OER development and adoption have the potential to save states a great deal of money, provide personalized learning experiences for engaging students, and potentially impact student outcomes when OER is used that is aligned with the CCSS.

OER Policy Recommendations

Based on our understanding of current OER policies and initiatives, we make the following recommendations for policy:

- Allow for open licensing of materials created by state, district, or public employees using public funds and give copyright ownership to the content creator. Publicly created learning materials for public education should require a Creative Commons open license (see http://creativecommons.org/licenses).

- States that have materials approval processes (like Texas) should ensure that OER are allowed to be included on approved instructional materials lists.

- States should enable more flexible use of instructional materials budgets to support the development and maintenance of openly licensed instructional materials, devices, or infrastructure needed to help implement online curriculum and assessments aligned with the CCSS and other relevant standards. Such development could occur on a statewide basis (as in Washington State), through a collaborative between states (e.g., PARCC and Smarter Balanced Assessment Consortia), or on an individual or collaborative district level with oversight from the state board of education (as in Utah).

- States should establish and fund an OER evaluation and adoption committee (where applicable). This committee could be composed of content experts, master teachers, and administrators from throughout the state to serve the purposes of identifying and rigorously evaluating existing OER with alignment to the CCSS and other relevant standards, such as the iNACOL National Standards for Quality Online Courses.

- States should establish and adequately fund a professional development program aimed at helping teachers and administrators understand the benefits and uses of OER, open licensing, and open content curation. Engaging higher education, pre-service, and in-service teacher preparation programs at state colleges and universities (that are publicly funded) is an important strategy.

- States could consider establishing at least one permanent OER specialist position with responsibility to oversee all OER-related activities throughout the state. This person would be responsible for overseeing the work of the OER evaluation and adoption committee, the collaborative development projects, and revision and updating projects.

- States should consider flexibility for funding the adoption of digital devices for student use (e.g., tablets) on which all online learning materials, online courses, and open textbooks could be accessed. Such devices could contain potentially all necessary instructional materials, effectively leading to a more cost-effective approach than printing.

Appendix A

References

SCORE Working Group on Digital Content Rights. (2010, March). *An expectation of sharing: Guidelines for effective policies to respect, protect and increase the use of digital educational resources*. Atlanta, GA: Southern Regional Education Board. http://publications.sreb.org/2010/10T02_Guidelines_Eff_Pol.pdf.

Caswell, T. (2012). The open course library of the Washington State colleges. In D. G. Oblinger (Ed.), *Game changers: Education and information technologies* (pp. 259–262). Washington D.C.: Educause.

Cisneros, Noe. (2009, September). *State initiatives regarding electronic or open source textbooks. Education Commission of the States*. http://www.ecs.org/clearinghouse/81/98/8198.pdf.

Levin, D. (2009). *Rethinking the state role in instructional naterials adoption: Opportunities for innovation and cost savings*. NASBE Policy Update 17.11. http://nasbe.org/index.php/file-repository/Education-Issues/Instructional-Materials/Rethinking-the-State-Role-in-Instructional-Materials-Adoption/ and reposted at http://www.k12opened.com/wiki/uploads/9/97/Instructional_Materials-3.pdf.

Creative Commons. (n.d.). *OER policy registry.* Retrieved April 2, 2013, from http://creativecommons.org.

Patent and Copyright Policies, Virginia H.B. 1941 (2009). Accessed at http://lis.virginia.gov/cgi-bin/legp604.exe?091+sum+HB1941.

Regarding Open Educational Resources in K-12 Education, Washington State H.B. 2337 (2012). Accessed at http://apps.leg.wa.gov/billinfo/summary.aspx?bill=2337&year=2011.

Relating to Open-Source Textbooks and Other Instructional Materials, Texas H.B. 2488 (2009). Accessed at http://www.legis.state.tx.us/billlookup/History.aspx?LegSess=81R&Bill=HB2488.

Sharing of Curriculum by Public School Educators, Utah Board Rule R277-111 (2009). Accessed at http://www.rules.utah.gov/publicat/bulletin/2009/20091201/33147.htm.

To Support and Encourage the Use of Online Textbooks, Maine L.D. 569 (2011). Accessed at http://www.mainelegislature.org/legis/bills/display_ps.asp?LD=569&snum=125.

Wiley, D., Bliss, T., & McEwen, M. (in press). Open educational resources: A review of the literature. *Handbook of Research on Educational Communications & Technology* (4th ed.).

List of Interviews

October 1, 2012: Cable Green, Creative Commons, formerly of the Washington State Board of Community and Technical Colleges

October 11, 2012: The Honorable Scott Hochberg of the Texas Legislature

November 19, 2012: Carol Lear of the Utah State Office of Education

Appendix B

OER Projects: Object Repositories, Courses, and Courseware

Carnegie Mellon University (OLI)	http://www.cmu.edu/oli/
Creative Commons	http://creativecommons.org
Curriki:	http://www.curriki.org/
HippoCampus (NROC)	http://new.HippoCampus.org
OER Commons	http://www.oercommons.org/
OER Policy Registry	http://wiki.creativecommons.org/OER_Policy_Registry
Open CourseWare Consortium	http://www.ocwconsortium.org
Mountain Heights Academy	http://www.mountainheightsacademy.org/
Rice Connexions	http://www.cnx.rice.edu
Saylor Foundation	http://saylor.org

Open Textbook Projects

CC Consortium for OER	http://oerconsortium.org/
CK-12 Foundation	http://www.ck12.org/flexr/
Flatworld Knowledge	http://www.flatworldknowledge.com/

More Open Learning Object Repositories, Referatories, and Specialized Collections

ActionBioscience.Org	http://www.actionbioscience.org/
AMSER (NSF)	http://amser.org/
Digital Learning Commons	http://www.learningcommons.org/
ide@s (U of Wisconsin System)	http://www.ideas.wisconsin.edu
Khan Academy	http://www.khanacademy.org/
Math Archives	http://archives.math.utk.edu/tutorials.html
Merlot	http://www.merlot.org
National Science Digital Library	http://nsdl.org/
NOAA	http://www.education.noaa.gov/
Open Education Group	http://openedgroup.org
PhET	http://phet.colorado.edu/en/simulations/category/new
SAS® Curriculum Pathways®	http://www.sascurriculumpathways.com
Teacher Tube	http://www.teachertube.com/
Wisc-Online	http://www.wisc-online.com

For more on OER:

Connexions online course about working with OER:

http://cnx.org/content/m15211/latest/

UNESCO OER Toolkit:

http://oerwiki.iiep-unesco.org/index.php?title=UNESCO_OER_Toolkit

WikiEducator OER Handbook for Educators:

http://wikieducator.org/OER_Handbook/educator_version_one/Introduction/Why_OER%3F

For more on copyright considerations:

http://creativecommons.org/

"At the heart of the movement toward Open Educational Resources is the simple and powerful idea that the world's knowledge is a public good and that technology in general, and the Worldwide Web in particular, provide an extraordinary opportunity for everyone to share, use, and re-use knowledge."

– The William and Flora Hewlett Foundation