



SharedOER (A study for IPTS by SERO Consulting)

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| Date | 31 January 2015 |
| Author | Sara Frank Bristow |

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Case Study: The Common Core State Standards Initiative and its impact on OER

0. Summary

This case study examines the recent development of Open Educational Resources (OER) and syllabi within the context of the **Common Core State Standards** (CCSS) in the United States. It analyses the impact that these newly introduced (2010) standards have had on the production, reuse and dissemination of OER in a number of states, as well as across state borders. A review of current state-based OER policies and practices is provided, along with an inventory of relevant implementation guides and content repositories. This case study offers a snapshot of developments as seen in late autumn 2014 and might exclude initiatives established around or after that date.

Literature review

In constructing this case study we have examined an array of open and proprietary academic journals, organisational reports, blogs, webinars and other media. Due to the rapidly changing landscape of CCSS planning and implementation, little data that extended beyond the 2012-13 school year had been published at the time of writing; interviews with key contacts at state departments of education and other organisations have played a key role in obtaining an accurate portrait of the state of CCSS at the start of School Year 2014-15.

Production note

This report is the second deliverable of the study *A scoping study on the potential of shared, cross-border OER and syllabi in Europe* that was carried out by Sero Ltd during 2014. The study has been commissioned by the Institute for Prospective Technological Studies (IPTS) at the Joint Research Centre of the European Commission.¹ The purpose of this report is to understand the current trends in the US regarding the production of Open Educational Resources, for primary and secondary schools.

This is the second edition of this report: the original version was completed in late November 2014. No new information on CCSS has been added since then except for one footnote, but the layout has been adjusted for consistency with the other SharedOER reports and some additional explanatory and linking material has been added, one purpose being to make it more accessible to a European and non-US readership. This version is in A4 page size with standard UK margins and document language set to UK English, except for the quotations (all from US sources) and US entity names.

¹ <https://ec.europa.eu/jrc/en/institutes/ipts>

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1. Education in the United States

The US federal government does not play a direct role in regulating most components of education in its primary and secondary schools, nor in ensuring a uniform set of national standards or curriculum. In fact, US law prohibits the federal education department from having any control over state or local districts' academic achievement standards or curriculum. As in Canada, Australia and China, the US school educational system is fully devolved to the states, and each state bears full responsibility for the education of its children.

Most states then devolve further curricular decision-making to the local level, a state of governance described as *local control*; most major policy decisions are made by state legislative bodies, while local governing bodies are charged with the assignment of students, professional development of teachers, and establishment of a curriculum consistent with the requirements of that state's department of education. Depending on the state, responsibility for ensuring a high-quality education may be shifted to regional school boards, city (municipal) school boards, school unions, or even schools themselves (e.g. charter schools).²

As a result, the nature and quality of education provided across the United States can vary dramatically, not just from state to state, but from district to district and school to school.

The federal *No Child Left Behind Act* of 2001 (NCLB) requires that each state adopt its own rigorous standards and develop its own definition of *adequate yearly progress* (AYP) in order to determine the annual achievement of each district and school. NCLB (which reauthorises the *Elementary and Secondary Education Act*, ESEA, of 1965) also requires that:

- Each state must have a single state-wide accountability system
- Adequate Yearly Progress is based on separate reading/language arts and mathematics achievement objectives
- Adequate Yearly Progress may be averaged over up to three years
- Adequate Yearly Progress is based primarily on achievement in academic assessments
- Adequate Yearly Progress must factor in graduation rates.

The majority of states have been granted flexibility in executing select *No Child Left Behind* provisions, upon demonstrating that students, teachers, and schools are otherwise transitioning to a system aligned with *college- and career-ready standards* for all students, developing differentiated accountability systems, and otherwise reforming classroom instruction and school leadership.

States not complying with NCLB risk losing portions of *Elementary and Secondary Education Act* funding. While ESEA explicitly forbids the establishment of a national curriculum, this fiscal reality, along with a range of recent flexibility waivers and competitive grants, has made it advantageous for states to accelerate adoption of new high-level standards (and assessment systems).

The *Common Core State Standards*, first introduced by state leadership consortia in 2010, provided a timely, widely accessible solution.

² <http://nces.ed.gov/fastfacts/display.asp?id=30>

Note on US terminology

The US Department of Education distinguishes between terms and responsibilities as follows:³

- *Standards* set goals for what students should know and be able to do while learning academic content.
- *Curricula* provide educators with an outline of what should be taught in classrooms.
- *Assessments* determine how much a student has learned and whether he or she has performed to a level of proficiency set by academic standards.

³ <http://www.ed.gov/k-12reforms/standards>

2. What are the Common Core State Standards?

2.1 The standards

The **Common Core State Standards** (CCSS) are designed to ensure that students graduating from high school are prepared to begin two- or four-year post-secondary programmes or enter the workforce.

The CCSS Initiative was first set up in 2009, and the standards for kindergarten through grade 12 (K-12) were made available in 2010. Specifically, the standards identify specific goals for language and literacy, as well as for Mathematics, that students should acquire at each grade level. As noted on the CCSS web site, the standards focus on core concepts and procedures starting in the early grades, which “gives teachers the time needed to teach them and gives students the time needed to master them”.⁴ For kindergarten through grade 8 (K-8), these are grade-by-grade; at high school level, the standards are grouped into bands for grades 9-10 and grades 11-12. Bands are intended to allow schools, districts, and states flexibility in course design.

For English Language Arts (ELA),⁵ the K-5 standards include expectations for reading, writing, speaking, listening, and language across a range of subjects. Standards for grades 6-12 are divided into two sections, one for ELA, the other for History/Social Studies, Science, and technical subjects.

In Mathematics, the Common Core concentrates on a clear set of mathematical skills and concepts to encourage students to solve real-world problems. High school (grades 9-12) Mathematics standards⁶ are organised by conceptual category, showing the body of knowledge students should acquire in each category to be college- and career-ready, or to pursue advanced study in Mathematics.

Accompanying model course descriptions, or *pathways*, are not intended to be prescriptive for curriculum or pedagogy.

2.2 Background and key stakeholders

As explained earlier, the US federal government does not (and cannot) provide academic standards, curricula or assessment models for the states. Therefore, to understand how the Common Core State Standards Initiative was formed, it is necessary to look at its key stakeholders.

Importantly for the US context, the initiative was a states-led effort, not a federal one. It was the state governors and chief state school officers, i.e. those in each state who are responsible for the education of its students, who recognised the lack of standardisation and the value of consistent, real-world learning goals. On this basis they “launched this effort to ensure all students, regardless of where they live, are graduating high school prepared for college, career, and life”.⁷

⁴ <http://www.corestandards.org/read-the-standards/>

⁵ http://www.corestandards.org/wp-content/uploads/ELA_Standards.pdf

⁶ http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf

⁷ <http://www.corestandards.org/about-the-standards/development-process/>



Figure 1. A short video tutorial outlining the motivators behind the Common Core State Standards Initiative is available at <http://www.corestandards.org/video/>

Contemporary efforts to reform academic standards date back to a National Education Summit held in 1996, following which state governors and corporate attendees founded Achieve, Inc., a non-profit, bipartisan effort focused on benchmarking and improving state standards. State leaders began discussing the potential in developing common standards as early as 2007; in 2008, governors and education commissioners, through their representative organisations, the **National Governors Association (NGA)**⁸ and the **Council of Chief State School Officers (CCSSO)**,⁹ joined with **Achieve, Inc.** to release a report outlining what would ultimately become the Common Core State Standards Initiative.¹⁰ In 2009, 48 out of 50 US states signed a memorandum of agreement committing to the initiative. NGA and CCSSO continue to lead the CCSS initiative today.

Other educational organisations involved in the process include the **National Education Association (NEA)**, the **American Federation of Teachers (AFT)**, the **National Council of Teachers of Mathematics (NCTM)**, and the **National Council of Teachers of English (NCTE)**.¹¹ Ultimately, through two public comment periods, nearly 10,000 comments on the standards were received (from teachers, parents, school administrators and other individuals concerned with education policy) to help shape the final version of the standards.

Both federal support for the state-led effort in 2010 and sizable philanthropic funding – initially from the Gates Foundation, and more recently from others including the Hewlett Foundation – have been crucial to the Common Core State Standards’ rapid development, adoption and implementation, as schools have struggled to meet *No Child Left Behind* targets.

Table 1 below gives a non-exhaustive list of CCSS stakeholders.

| State leaders and partners | Professional organisations | Philanthropic funding |
|---|---|--|
| <ul style="list-style-type: none"> • The National Governors Association (NGA) • The Council of Chief State School Officers (CCSSO) • Achieve, Inc. | <ul style="list-style-type: none"> • National Education Association (NEA) • American Federation of Teachers (AFT) • National Council of Teachers of Mathematics (NCTM) • National Council of Teachers of English (NCTE) | <ul style="list-style-type: none"> • Gates Foundation • Hewlett Foundation |

Table 1. Some major stakeholders involved in the CCSS Initiative.

⁸ <http://www.nga.org/cms/home.html>

⁹ <http://www.ccsso.org>

¹⁰ <http://www.nga.org/files/live/sites/NGA/files/pdf/0812BENCHMARKING.PDF>

¹¹ <http://www.nea.org/>; <http://www.aft.org/>; <http://www.nctm.org/>; and <http://www.ncte.org>

More information is found at the CCSS web site, including a more comprehensive list of a bipartisan mix of organisations.¹² States may develop and adopt their own alternative standards, as long as they are adequately rigorous. For example, Virginia's Board of Education has revised its own state-based *Standards of Learning* to ensure that instructional standards in Virginia public schools are comparable to the Common Core State Standards.

2.2 Implementation and uptake model

As of October 2014, 43 US states had voluntarily adopted and were working to implement the Common Core State Standards. (Five states who initially committed to the initiative have since withdrawn their efforts due to obstacles described later in this paper.)

While the CCSS themselves are uniform, instructional materials aligned with these standards must be procured or created by each state independently. As noted on the CCSS web site:¹³

The standards are not curricula and do not mandate the use of any particular curriculum. Teachers are able to develop their own lesson plans and choose materials, as they have always done. States that have adopted the standards may choose to work together to develop instructional materials and curricula. As states work individually to implement their new standards, publishers of instructional materials and experienced educators will develop new resources around these shared standards.

Each state will also need to provide evidence of adequate student performance upon assessment; CCSS implementation therefore requires rapid adoption of new assessment solutions as well. The formal examinations emerging are themselves computer-based, and a trend towards digital rather than paper textbooks has aligned neatly with both much-needed improvements to US broadband infrastructure in schools and the advent of the CCSS. (Multistate consortia are contracting with commercial providers to prepare the new assessments; read more under Section 4, Cross-border collaborations, later.)

Open Educational Resources (OER), which reside primarily (or by some definitions, entirely) online, have emerged as a viable and potentially cost-saving option, alongside a wide range of proprietary digital textbooks from traditional and newly formed publishers.

The remainder of this report focuses primarily on the implementation of these open instructional resources, typically as defined by the Hewlett Foundation:¹⁴

OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

It is important to note that few instances of OER are intended for students being educated in a purely online context – that is, the resources examined here are not generally intended for use

¹² <http://www.corestandards.org/about-the-standards/development-process/> and <http://www.corestandards.org/other-resources/statements-of-support/>

¹³ <http://www.corestandards.org/about-the-standards/frequently-asked-questions/>

¹⁴ <http://www.hewlett.org/programs/education/open-educational-resources>

by remote students enrolled in virtual schools.¹⁵ OER generally forms part of a blended solution, where a single face-to-face teacher (the *teacher of record*) is the primary provider of education, and remote instructors provide only supplemental instruction.

Specific instances of openly licensed CCSS-aligned content are described in the OER Inventory later in this report (see Appendix: Inventory).

2.3 Barriers to implementation

Upon embracing the Common Core State Standards, many states have found them difficult to integrate into existing school ecosystems. Using recently procured resources, teachers must learn to teach according to more complex, more prescriptive standards, and schools must adapt their schedules to cross-curricular requirements, as well as grade ‘banding’ at the higher levels. The learning curve has been steep.

Federal accountability measures that tie funding to CCSS assessment have also proved tricky. A 2013 survey by the Center for Education Policy¹⁶ found most states unprepared for one or many aspects of the transition to CCSS, and low test scores in 2014 have brought serious consequences.

Additionally, school leaders are encountering technological barriers on the route to deployment. Broadband internet capability simply may not be up to the challenges demanded by a fully online curriculum; students educated in face-to-face or blended settings may be unprepared for 100% online examinations; teachers or students may not be adequately computer-literate, or may even find too few computers in their schools. (This list is not exhaustive.)

Apart from the practical barriers listed above, in the political sphere a steady stream of criticisms of the Common Core State Standards have been levelled in the years since the standards were made available. Among these are several common accusations:

- That CCSS *lowers* academic standards, as opposed to *raising* them
- That CCSS are part and parcel of a *nationally mandated* – and therefore *illegal* – curriculum
- That CCSS were formed by *special interests seeking to profit* from software, textbook and assessment tool sales.

Despite increased media attention to these critiques (which are often politically driven rather than based on credible evidence), full implementation is proceeding in the majority of states. Lawmakers have proposed to amend, delay or repeal the CCSS in numerous states, but such changes have been signed into law in only a few states.

A full listing of all state legislation related to college- and career-readiness standards, including the CCSS, is available through the National Conference of State Legislatures.¹⁷

¹⁵ For an up to date description of virtual schools in the US see http://www.kpk12.com/wp-content/uploads/EEG_KP2014-fnl-lr.pdf

¹⁶ http://www.iste.org/docs/pdfs/rentner_report_stateccssassessment_8-28-13.pdf

¹⁷ <https://sites.google.com/site/ncslccssupdate/>

3. State legislation and policy relating to OER

Most states rely on ‘local control’ curricular models, and thus cannot dictate to publicly funded schools or school districts what instructional resources must be used by teachers. Legislation *relating to the state-wide adoption* of such materials is therefore the exception, not the norm, and for this reason laws supporting state-wide OER adoption are rare (though legislation *removing barriers to uptake* of openly licensed materials is more common). Several additional initiatives do target students state-wide, however, and these are examined in the following section.

A note on governance in US states

Those readers less familiar with the details of governance in US states may find it useful to know that in every US state except Nebraska the legislature consists of two separate legislative chambers or *houses*. In each case the smaller chamber is called the *senate* and is often referred to as the *upper house*. Members of the smaller chamber represent more citizens (per member) and usually serve for longer terms than members of the larger chamber. In most states, the larger chamber is called the *House of Representatives*.¹⁸

3.1 Washington (State)

The most robust state-wide OER policy is seen in the state of Washington, which in 2012 established and committed modest funding to a K-12 open course library. House Bill 2337 *Regarding Open Educational Resources in K-12 Education* stated:¹⁹

The legislature finds the state’s recent adoption of common core K-12 standards provides an opportunity to develop high-quality, openly licensed K-12 courseware that is aligned with these standards. By developing this library of openly licensed courseware and making it available to school districts free of charge, the state and school districts will be able 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.

The work of the Office of Superintendent of Public Instruction (OSPI) in just two years has benefited students both within Washington and beyond. Washington is a key player in a large-scale cross-border initiative announced formally at the Open Education Conference²⁰ in November 2014 – described in the following section (Section 4, Cross-border Collaborations). Washington’s K-12 OER efforts build on earlier work by the Washington Open Course Library for community and technical colleges,²¹ but the Common Core State Standards have been a primary driver for this initiative and for Washington’s K-12 OER resources and ‘rubrics’ (sets of criteria for assessing content or grading assignments) as a whole. These and other content-specific OER initiatives are explored in the Inventory (Appendix to this report).

¹⁸ For more detail see http://en.wikipedia.org/wiki/State_legislature_%28United_States%29 (access date: 31 January 2015) and the *Law and Government* sections of the Wikipedia pages on relevant US states.

¹⁹ <http://apps.leg.wa.gov/billinfo/summary.aspx?year=2011&bill=2337>

²⁰ <http://www.openedconference.org>

²¹ <http://opencourselibrary.org>

3.2 Utah

Utah is a pioneer in K-12 OER, but its Administrative Rule R277-111 (2009) *Sharing of Curriculum Materials by Public School Educators* simply ensured that Utah educators could openly license their own materials without seeking permission from their employers:²²

Utah educators may share materials under a Creative Commons License and shall be personally responsible for understanding and satisfying the requirements of a Creative Commons License.

This was the state's first administrative rule designed to clarify a state board's position on teacher use of instructional materials and copyright laws, introduced in parallel with the opening of the **Mountain Heights Academy** (formerly the Open High School of Utah).²³ *Mountain Heights remains the only high school whose curriculum is built entirely from either available OER or teacher-crafted materials.*

State-wide CCSS-aligned content from the Utah Open Textbooks Projects is reviewed later (Appendix A2, State-based OER); close partnerships with the Hewlett Foundation, the CK12 Foundation²⁴ and Brigham Young University have contributed to that programme's success.

3.3 Minnesota

In 2012 Minnesota's *Chapter 237 Act* mandated creation of "a catalog of publicly available digital learning content currently aligned to Minnesota academic standards";²⁵ the resulting resources are reviewed in the Inventory. OER were then identified alongside professional development in a December 2013 report by the *Report of the Online and Minnesota Department of Education's Online and Digital Learning Advisory Council* as "being of most critical importance... for the state to address immediately". The *Minnesota Digital Curriculum Referral Catalog*,²⁶ now supported by an ongoing appropriation, allows users to search for digital content that claims alignment to Minnesota academic standards (based on the CCSS).

3.4 Maine

Maine's Act LD 569 (2011) *To Support and Encourage the Use of Online Textbooks* mandated the creation of an information clearinghouse on the use of online and Open Educational Resources, among other programmes.²⁷

3.5 Texas

In 2009 the Texas legislature adopted a House Bill HB 2488 *Relating to Open-Source Textbooks and Other Instructional Materials* giving the Commissioner of Education the authority to include Open Educational Resources and other digital resources on the official list of approved instructional materials. *Open source textbooks* were made eligible for

²² <http://www.rules.utah.gov/publicat/bulletin/2009/20091201/33147.htm>

²³ <http://www.mountainheightsacademy.org>

²⁴ <http://www.ck12.org>

²⁵ <https://www.revisor.leg.state.mn.us/laws/?year=2012&type=0&doctype=Chapter&id=273&format=pdf>

²⁶ <https://sites.google.com/site/innovativeinstruction/projects-1/completed-projects>

²⁷ http://www.maine.gov/legis/lawlib/EPS/125_1d569.pdf

inclusion in the state adoption process for curricular materials, although these textbooks need not be openly licensed.²⁸

3.6 Virginia

In 2009, the Virginia legislature adopted a policy clarifying intellectual property rights for state employees. The House Bill HB1941 *Patent and Copyright Policies* permitted instructors to openly license materials.²⁹ In 2010, the Senate Bill SB 241 *Open Education Curriculum Board* established an entity with authority to designate qualifying entities as Open Education Consortia and set the standards for the subsequent licensing of any educational curriculum developed (i.e. licensed under a Creative Commons license or for use as a commercial product).³⁰

3.7 West Virginia

In the state of West Virginia the Senate Bill SB631 (2010) *Updating process for adopting textbooks and other instructional material* permitted open materials to be considered for inclusion in school curricula. One stated purpose of the bill was to “enable county boards more flexibility in adopting vendor updated print and electronic instructional resources”.³¹

²⁸ <http://www.legis.state.tx.us/tlodocs/81R/billtext/html/HB02488F.HTM>

²⁹ <https://leg1.state.va.us/cgi-bin/legp504.exe?091+sum+HB1941>

³⁰ <https://leg1.state.va.us/cgi-bin/legp504.exe?101+sum+SB241>

³¹ <http://legiscan.com/WV/bill/SB631/2010>

4. Cross-border collaborations

As of autumn 2014 multi-state collaborations specific to OER are not commonly found between US states, though other academic multistate collaboration vehicles are not unusual. The first major cross-border OER initiative, the **K-12 OER Collaborative**, was launched in November 2014 at the Open Education Conference.³² At that time a formal Request for Proposals (RFP) was issued to move forward with the Collaborative's primary goal: to create a comprehensive, openly licensed curriculum aligned to Common Core State Standards.³³

The Collaborative represents the fruition of several years of cooperation among US states seeking common ground in the CCSS, sharing curriculum and resources instead of bearing the brunt of education reform alone. Utah, Washington, and Idaho comprise the initial steering committee members; the group is facilitated by CCSSO. Its objective is to create comprehensive, high-quality open education resources supporting K-12 Mathematics and ELA, aligned with the CCSS.

The Collaborative seeks offer additional choice to local education agencies, reduce expenditures, and offer higher quality digital educational content:³⁴

The K12 OER Collaborative was formed in order to take advantage of this unique opportunity to provide America's schools with high-quality, open, CCSS-aligned instructional materials at an enormous cost savings. New materials will be created for every grade level through a competitive RFP process per the specifications of the participating states. The materials developed as part of this project may build on existing OER or be newly created. The goal is that the resulting OER offer the full range of instructional supports, assessments and CCSS alignments that best meet the needs of educators. These materials will be openly licensed (CC BY), updated annually, aligned to assessments, and available for free in both digital and print format... The goal is to get support from 15 states and coordinate fundraising to create and update the initial content, and then extend to additional subjects in the future.

Utah, Washington and Idaho form the Collaborative's initial steering committee members. Other participating states are Arizona, California, Minnesota, Montana, North Carolina, Nevada, Oregon, and Wisconsin. These states will provide content experts and teachers to participate in all phases of the project.

The Collaborative will be managed initially by **The Learning Accelerator**, a non-profit organisation. In 2015 the project is expected to transition to a new non-profit organisation formed specifically "to steward the creation and ongoing development of these resources".³⁵ Supporting Organisations are the Council of Chief State School Officers (CCSSO), Achieve, Inc., The Learning Accelerator, Lumen Learning, Creative Commons, the State Educational Technology Directors Association (SETDA), the State Instructional Materials Review Association (SIMRA) and the Association of State Supervisors of Mathematics (ASSM).³⁶

³² See <http://openedconference.org/2014/>

³³ See <http://k12oercollaborative.org>

³⁴ See <http://openededucation2014.sched.org/event/46caa2a1c490b08ca52b2a1518a921cb>

³⁵ See <http://k12oercollaborative.org/rfp/>

³⁶ See <http://k12oercollaborative.org/about/members/>

This robust Collaborative builds on earlier work by Achieve, Inc. dating to November 2012, when it brought together representatives from seven states for a meeting of its then recently convened *Open Educational Resources (OER) Institute*. Exercises created by Achieve and the *US Education Delivery Institute*³⁷ were used to help states consider their current progress and begin to create a plan for implementing OER.

Participants in the Achieve OER Institute were existing members of Achieve's **American Diploma Project (ADP) Network**,³⁸ established in 2005 to make college and career readiness a priority in US states. While some OER Institute member states have proceeded cautiously with OER, others have embraced it, and the 11 members of the Collaborative do not include all those in the Institute. Key materials that Achieve has generated, e.g. their OER Rubrics and Evaluation Tool, are listed in the Inventory section in the Appendix.

Other partnerships focusing on CCSS have generally revolved around the issue of assessment, and take on a range of forms. These include:

- The **National Governors Association (NGA)**³⁹ is a bipartisan organisation of the nation's governors. Through NGA, governors share best practices, speak with a collective voice on national policy, and seek solutions that improve state government and support the principles of federalism.
- The **Council of Chief State School Officers (CCSSO)**⁴⁰ is a nationwide, nonpartisan, non-profit membership organisation. Chief state school officers from each state participate, leveraging collective state action in hopes of creating a public education system that prepares students for lifelong learning, work, and citizenship.
- The **Partnership for Assessment of Readiness for College and Careers (PARCC)**⁴¹ is a group of states working together to develop a set of assessments that measure whether students are on track to succeed in college and their careers. Its computer-based K-12 assessments in Mathematics and ELA, the PARCC assessments, will be ready for states to administer during the 2014-15 school year.
- The **Smarter Balanced Assessment Consortium (Smarter Balanced)**⁴² is a state-led consortium developing next-generation assessments to measure student progress toward college- and career-readiness. Smarter Balanced is one of two multistate consortia awarded funding from the US Department of Education in 2010 to develop an assessment system aligned to the CCSS by the 2014-15 school year.
- **Core to College**⁴³ is a multistate grant initiative designed to promote strong collaboration between higher education and the K-12 sectors in the implementation of the CCSS and aligned assessments. Core to College is funded by Rockefeller Philanthropy Associates with technical assistance from Education First.

³⁷ <http://www.deliveryinstitute.org>

³⁸ <http://www.achieve.org/adp-network>

³⁹ <http://www.nga.org>

⁴⁰ <http://www.ccsso.org>

⁴¹ <http://www.parcconline.org>

⁴² <http://www.smarterbalanced.org/about>

⁴³ <http://rockpa.org/page.aspx?pid=580>

5. Outlook

OER features increasingly prominently among education leaders' decision-making, and its uptake has been encouraged in federal planning tools such as the 2010 *National Broadband Plan*,⁴⁴ the 2010 *National Educational Technology Plan*,⁴⁵ the 2012 *Digital Textbook Playbook*,⁴⁶ and initiatives announced under the *Second Open Government National Action Plan* (2013).⁴⁷

The International Association for K-12 Online Learning's *OER State Policy in K-12 Education* report (2013) declares:⁴⁸

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... 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.

States already embracing K-12 digital textbook initiatives include Utah, Indiana, Texas, Virginia, California, Florida, and North Carolina; with a shift towards OER use and reuse models, the opportunities for American students are plentiful. Schools are upgrading their technological/broadband capabilities and embracing digital learning materials, while simultaneously transitioning to a new curriculum – even if this brings with it unforeseeable costs (both financial and academic) during implementation. The scale afforded by the widespread uptake of the CCSS presents states with an unprecedented window during which to collaborate.

This proposition is framed by the K-12 OER Collaborative as follows:⁴⁹

School districts across the country are expected to spend over \$8 billion dollars to acquire new CCSS aligned curriculum materials for math and ELA. These textbooks will quickly fall into disrepair and their content will lapse out of date. In addition, much of this spending will be on costly yearly subscription fees for online content which states will only be able to lease (not own)... The huge aggregate demand represented by the nationwide need for new materials creates a unique opportunity for states to acquire higher quality, more effective content aligned to the CCSS in a smarter, far less expensive, and far more flexible manner, and make these available to districts. Specifically, states and districts can transition from expensive and rigidly controlled materials to open educational resources (OER). These new open instructional resources are low-cost and can be accessed and used in distinct and improved ways from traditional materials.

⁴⁴ <http://www.fcc.gov/national-broadband-plan>

⁴⁵ <http://www.ed.gov/sites/default/files/netp2010.pdf>

⁴⁶ http://transition.fcc.gov/files/Digital_Textbook_Playbook.pdf

⁴⁷ http://www.whitehouse.gov/sites/default/files/docs/us_national_action_plan_6p.pdf and http://www.whitehouse.gov/sites/default/files/microsites/ostp/new_nap_commitments_report_092314.pdf

⁴⁸ http://www.inacol.org/cms/wp-content/uploads/2013/06/inacol_OER_Policy_Guide_v5_web.pdf

⁴⁹ <http://openeducation2014.sched.org/event/46caa2a1c490b08ca52b2a1518a921cb>

The OER Collaborative will, it is hoped, bring some of this exceptional potential to fruition, improving student equity and better preparing students for today's society. (Its content production model will depend, like many such efforts in the United States, on the acquisition of foundation funding and corporate support.)⁵⁰ We are cautiously optimistic.

In summary

The earlier parts of this paper have sought to capture the drivers and mechanism for creation of the Common Core State Standards in the US, to review relevant state-based OER policies, and to examine cross-border collaborations to date. An inventory of OER tools and resources follows after the References.

⁵⁰ <http://k12oercollaborative.org/about/faq/>

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⁵¹ Released after completion of this research report, this title is included for thoroughness only.

Appendix: Inventory

A.1 Open Educational Practices

- **OER Rubrics and Evaluation Tool** from **Achieve, Inc.** (<http://www.achieve.org/oer-rubrics>) addresses quality and alignment of OER. Includes slides and video for each rubric, as well as for the evaluation tool. The Achieve OER rubrics are incorporated in OER Commons (a popular platform for content sharing across different organisations and states; see below).
- **EQuIP Rubrics** from **Achieve, Inc.** (<http://www.achieve.org/EQuIP>) is an initiative of the American Diploma Project (ADP) Network, designed to identify high-quality materials aligned to the Common Core State Standards.
- **Materials Alignment Toolkit** from **Student Achievement Partners** (<http://achievethecore.org/page/285/materials-alignment-toolkit-list-pg>) is a suite of tools for evaluating the alignment of instructional and assessment materials to the Common Core State Standards. The Toolkit was developed in partnership with **Achieve** and the **Council of Chief State School Officers**.
- **OER Evaluation Tool Handbook** from **Achieve, Inc.** (<http://www.achieve.org/files/AchieveOEREvaluationToolHandbookFINAL.pdf>) is designed to walk a user through the process of evaluating an online resource using the Achieve rubrics.
- **OER Planning Framework** from **Achieve, Inc.** (<http://www.achieve.org/files/OERPlanningFramework130315.pdf>) offers a guide for state teams planning to implement OER.
- **Workbook: Implementing Common Core State Standards and Assessments** from **Achieve, Inc. /US Education Delivery Institute** (http://www.achieve.org/files/Common_Core_Workbook.pdf) contains a framework for CCSS policies, sample timelines, relevant best practices, implementation advice and related exercises.
- **OER Materials Review Instruments** from **OSPI, Washington** (<http://digitallearning.k12.wa.us/oer/review/instruments.php>) outlines specialised instruments designed intentionally for the CCSS, by CCSS developers and state/national curriculum experts, as used in the Washington state OER review process.
- **OER Collaborative Content Development Guide** from **iNACOL** (http://www.inacol.org/cms/wp-content/uploads/2013/06/inacol_OER_Collaborative_Guide_v5_web.pdf) offers guidance for US state and school leaders preparing to collaborate across state borders.
- **Common Core State Standards: Implementation Tools and Resources** from the **Council of Chief State School Officers** (http://www.wlma.org/Resources/Documents/Common%20Core/Common_Core_Resources.pdf) lists tools and free resources directing states to promising practices and tools supporting CCSS implementation.

- **Standards & Assessment Resources** from the **US Department of Education** (<http://www2.ed.gov/teachers/assess/resources/edpicks.jhtml>) offers internal and external tools.
- **Common Core Webinar Series** from **ASCD** (<http://www.ascd.org/professional-development/webinars/common-core-webinars.aspx>) archive explores a wide range of education topics in the context of the Common Core State Standards.
- **A Guide to the Common Core State Standards** from the **Center for American Progress** (<http://www.americanprogress.org/issues/education/news/2013/12/04/80426/a-guide-to-the-common-core-state-standards/>) includes fact sheets on 14 states, documenting their current state of student achievement, demonstrating why higher standards are important, and offering a side-by-side comparison on how the CCSS could raise student achievement.
- **Communicating the Common Core State Standards: A Resource for Superintendents, School Board Members, and Public Relations Executives from The Council of the Great City Schools** (<http://www.cgcs.org/cms/lib/DC00001581/Centricity/Domain/4/FINAL%20Communicating%20Common%20Core%2011.13.pdf>) includes recommendations for key elements of a successful communications plan about the common core, offers sample resources, and examines one implementation campaign.
- **A Primer on Common Core-Aligned Assessments** from **Education First** (http://www.education-first.com/files/A_Primer_on_Common_Core-Aligned_Assessments_Education_First.pdf) is designed for state policymakers, advocates, educators and other stakeholders transitioning to, or seeking to transition to, CCSS assessment systems.
- **Common Core State Standards Systems Implementation Plan for California** (<http://www.cde.ca.gov/re/cc/documents/ccsssimplementationplan.doc>) from **California Department of Education** identifies the major phases and activities in the implementation of the CCSS throughout California's educational system.

A.2 State-based OER

- **California: The Free Digital Textbook initiative** (<http://www.clrn.org/fdti/>) was launched in 2009 to spur open textbook creation. CK-12 published these books as PDF or EPUB files; three rounds of reviews have been undertaken. See also the CCSS Resource Clearinghouses (<http://www.cde.ca.gov/re/cc/clearinghouses.asp>), linking to CCSS implementation resources
- **Georgia Virtual School** (<http://www.gavirtuallschool.org/Educators.aspx>) offers complete OER courses to teachers through Georgia Virtual Learning (<http://www.gavirtualllearning.org/Resources/SharedLandingPage.aspx>). Where applicable, content is aligned to the Georgia Performance Standards and the Common Core State Standards.
- **Hawaii: OER Commons** (<http://standardstoolkit.k12.hi.us/common-core/open-education-resources-oer/>) enables search for hundreds of CCSS-aligned resources, available to resident users through OER Commons. Most lesson plans, student tasks, classroom activities, classroom assessments have been reviewed by teachers in association with the Hawaii Department of Education.

- **Illinois Shared Learning Environment (ISLE) OER** (<https://ioer.ilsharedlearning.org/Help/Guide.aspx>) platform offers links to 200,000 open and interoperable learning resources, with Common Core State Standards alignment filters.
- **Maine OER for ELA Project** (<https://sites.google.com/site/maineoerforela/>) predates alignment to the Common Core State Standards, but aligns to earlier state standards (2011).
- **Minnesota: OER Commons** (<https://www.oercommons.org/groups/minnesota-digital-curriculum-catalog/210/information/>) hosts the Minnesota Digital Curriculum Referral Catalog, which allows users to search for digital content that claims alignment to Minnesota (CCSS) academic standards (content had not been reviewed as of October 2014). Created with legislative direction in 2013, the state Department of Education oversees the catalogue with the advice and support of the Minnesota Learning Commons and the state's Online and Digital Learning Advisory Council.
- **Minnesota Learning Commons** (<https://mnlearningcommons.us/app/custom/MDE/home>) provides online, education-related resources, tools and services in all education sectors. Members may contribute to or rate the digital content; a prototype catalogue has been seeded with an estimated 300 OER.
- **Minnesota Partnership for Collaborative Curriculum** (<https://sites.google.com/site/innovativeinstruction/projects-1/completed-projects>) is a grassroots initiative among school districts to create comprehensive open digital content for all courses in grades 3-12 in the four core content areas.
- **New York: Engage NY** (<https://www.engageny.org/ccss-library>) includes CCSS-aligned curriculum and instructional resources, developed and maintained by the New York State Education Department.
- **Utah: The Utah Open Textbook Projects'** (<http://www.uen.org/oer/>) open science textbooks were deployed first in a handful of pilot schools (2010), then across an entire school district (2012), before being made available state-wide for grades 7-12 (2013). A wide range of CCSS-aligned textbooks are now available, designed as PDFs for printing.
- **Washington state: OSPI Reviewed OER library** (<https://digitalllearning.k12.wa.us/oer/library/>) provides links to content that has undergone high-level state review, with transparent information about its Open Educational Practices (which includes OER review rubrics), as part of a legislative mandate to develop a library of OER aligned with the Common Core State Standards.

A.3 OER from federally funded and independent organisations

- **The Learning Registry** from the **US Department of Education** (<http://learningregistry.org>) represents a joint effort between the federal government, non-profit agencies, and private companies to create a permanent network of digital learning resource providers. In 2010 it was charged with becoming “an open technology framework to which any content creator can publish”. Contributors include the Library of Congress, the Smithsonian, and the National Science Digital Library. It has received modest (\$1 million) federal funding and had over 421,000 resources published as of October 2014.

- **Federal Registry for Educational Excellence (FREE beta)** (<http://free.ed.gov/about/>) predates the CCSS; launched in 1997, it seeks to make it easier to find digital teaching and learning resources created and maintained by the federal government and public and private organisations. From 1998-2000 Funding was provided by the Government Information Technology Services Board under the IT Innovation Fund.
- **OER Commons from ISKME** (<https://www.oercommons.org/>) offers a knowledge base around the use and reuse of OER, and a network over 42,000 reviewed and fully-indexed OER (with optional alignment to the CCSS). OER Commons offers ease of use and interoperability that makes it attractive as a ‘front end’ and/or ‘engine’ for numerous OER initiatives; OER Commons offers landing pages for Minnesota (public) and Hawaii (private), for example.
- **Khan Academy** (<https://www.khanacademy.org/commoncore>) non-profit organisation is presently mapping K-12 OER resources to the Common Core State Standards, in partnership with Smarter Balanced, a principle CCSS assessment provider. It offers several thousand CCSS-aligned, interactive math problems.
- **The CK-12 Foundation** (<http://www.ck12.org>) is a non-profit that creates and aggregates high quality curated STEM content, now offering over 15,000 resources. Content is mapped to a variety of levels and standards, including the Common Core State Standards.
- **America Achieves** (<http://commoncore.americaachieves.org/>) non-profit organisation offers CCSS support, lesson plans and links to resources. Ongoing work is support by the Gates Foundation and Bloomberg Philanthropies.
- **BetterLesson from the Master Teacher Project** (http://betterlesson.com/common_core), through a partnership with the National Education Association, will offer over 10,000 complete CCSS-aligned lessons from over 130 ‘top tier’ teachers in grades K-12 math and ELA, from SY 2014-15. It is unclear how these materials will be licensed.
- **OpenEd Inc.** (<https://www.opened.io/search>), a private company, offers a mixed OER and proprietary resource library, with over a million lesson plans, assessments, videos, games and more – some items are ‘premium’ publisher content available for a fee.
- **Edutopia** (<http://www.edutopia.org>) from the **George Lucas Educational Foundation** offers numerous resources guides for CCSS-aligned materials, many of which are free and/open. These include:
 - **Resources for Understanding the Common Core State Standards** (<http://www.edutopia.org/common-core-state-standards-resources>)
 - **Open Educational Resources (OER): Resource Roundup** (<http://www.edutopia.org/article/open-educational-resources-oer-resource-roundup>)
 - **A Tour of High-Quality Open Education Resources (OER) for Writing** (<http://www.edutopia.org/blog/open-education-writing-curricula-todd-finley>)
 - **Project-Based Learning and the Common Core: Resource Roundup** (<http://www.edutopia.org/project-based-learning-common-core-resources>)

- **Common Core Math: Best Resources for High School Educators**
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- **5 Open Education Resources for K-5 Common Core Math**
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- **Common Core ELA Resources for Middle School Educators**
(<http://www.edutopia.org/blog/common-core-ela-middle-school-matt-davis>)
- **ELA Common Core Resources for Elementary Educators**
(<http://www.edutopia.org/blog/common-core-ela-resources-elementary-matt-davis>)

Other entities offering CCSS-aligned maths and ELA curricular components include:

- **LearnZillion** (https://learnzillion.com/common_core/)
- **Share My Lesson** from the American Federation of Teachers
(<http://www.sharemylesson.com/common-core-state-standards?storyCode=50000148/>)
- **Shmoop** (<http://shmoop.com>)
- **PBS** (<http://www.pbs.org>)
- **Connexions (OpenStax)** (<http://cnx.org>)
- and many others.