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Peer reviewed

CALIFORNIA
OER
COUNCIL
CSU + CCC + UC

Final Progress Report
California Open Educational Resources Council

Submitted to the Intersegmental Committee of Academic Senates
December 1, 2015
(rev 4/15/16)
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See also CA-OERC White Paper: OER Adoption in College Classrooms

VISUAL AIDS
- What CA-OER Council Does (online pdf)
- OER Faculty Survey Results 2014-2015 (online pdf)
- Map of Participants (online map)

APPENDICES
- Appendix A: Readability Report
- Appendix B: OER Definitions - Defining Terms
- Appendix C: Results of general faculty & student surveys
- Appendix D: Focus Group Queries & Accompanying Research

INTRODUCTION
SB 1052 (Steinberg, 2012) specified that the California Open Education Resources Council ("CA-OERC") be established under the administration of the Intersegmental Committee of Academic Senates ("ICAS") of the University of California, the California State University, and the California Community Colleges. The bill called for the addition of §66409[1] to the California

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[1] §66409 (b) states, "The CA-OERC shall have nine members: three members shall be faculty of the University of California, selected by the Academic Senate, University of California; three members shall be faculty of the California State University, selected by the Academic Senate of the California State University; and three members shall be community college faculty, selected by the Academic Senate for California Community Colleges." Additionally, a CA-OERC chair/project coordinator selected by ICAS is a non-voting member. Participation of CA-OERC faculty members, the CA-OERC coordinator, and support staff is funded by the matching grants.

Education Code to define the makeup of the CA-OERC and its responsibilities.[2] (See infographic, What CA-OER Council Does [online pdf].)[3]

To establish the CA-OERC and the accompanying California Digital Open Source Library (COOL4Ed), the Senate Bills apportioned $5,000,000 and directed the California State University, Office of the Chancellor to seek private funds to match the State budget. The CSU, directed to administer the funds, was awarded grants in Fall 2013 by the William and Flora Hewlett Foundation and the Gates Foundation to match the State's funding, as mandated by SB 1052 (Steinberg, 2012) and SB 1053 (Steinberg, 2012). Per state legislation, the California State University (CSU) facilitated collaboration among the three segments of California public higher education to design and deliver intersegmental services for the faculty and students of California's public colleges and universities. The CSU's leadership and support enabled the CA-OERC to operate effectively and allowed for the necessary flexibility among the three segments.

The CA-OERC first met in January 2014 with meetings scheduled every two weeks. Through both valuable in-person meetings and conference calls, the CA-OERC has made significant progress on the issues surrounding adoption, implementation, and use of open educational resource ("OER") textbooks by faculty and students.[4]

Achievements January 2014-December 2015

- Developed criteria for selecting 50 highly-enrolled courses common across the three segments (Winter 2014)
- Canvassed the publicly available Course Identification Number System (C-ID.net), statewide campus bookstores, and segmental website information (CCC, CSU, UC) about high-enrollment courses likely to involve standard textbooks (Winter 2014)
- Canvassed the anglophone landscape of extant open educational resources ("OER") repositories and their policies (Winter 2014)
- Compiled a list of 50 courses for which to identify OER (Spring 2014)
- Developed rigorous rubrics and training material for OER textbook reviewers (Spring 2014)
- Identified and contacted administrative leadership (CCC, CSU, UC) who may help with awareness of OER (Fall 2014)
- Identified more than 160 appropriate OER textbooks for the 50 courses that will result in approximately 450 textbook reviews to be displayed on COOL4Ed (Spring 2014~Fall 2015)
- Surveyed CCC, CSU, & UC faculty for feedback on adopting OER textbooks
- Performed extensive research on the adoption, implementation, and use of OER textbooks with findings specific to CCC, CSU & UC (Spring 2015-Fall 2015)
- Continued outreach and education by presenting at conferences and regional governance meetings (Spring 2014-Fall 2015)

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[2] See current and past members of the CA-OERC: http://icas-ca.org/coerc-participants
[3] See also the FAQ about the CA-OERC: http://icas-ca.org/faq. For a detailed list of CA-OERC responsibilities, see: http://icas-ca.org/duties-of-coerc
[4] For detailed quarterly progress reports by the CA-OERC 2014-2015, see http://icas-ca.org/progress-reports

- Established an online presence via CA-OERC website and a social media presence with Facebook and Twitter (Spring 2014-Fall 2015)

The CA-OERC represents an unprecedented collaboration among three disparate segments of California public higher education, a collaboration unparalleled by any other large state-funded system of universities and colleges. With 113 CCC campuses, 23 CSU campuses, and 10 UC campuses, the scale of CA-OERC's work cannot be underestimated. The Council's success has been contingent upon representing the diversity of each segment as well as discovering where the segments' missions coalesce.

INTERSEGMENTAL ACTIVITY

The California Open Educational Resources Council represents an innovative experiment in intersegmental cooperation and collaboration. Working with colleagues from across California's three public higher education systems has significantly advanced the effort to lower educational costs for the state's undergraduates and, at the same time, has educated CA-OERC members regarding major differences among the systems and potential obstacles preventing widespread OER adoption.

Collegiality among faculty from the three segments has been a refreshing and an important factor in the CA-OERC's work. CA-OERC members are comfortable in describing, recognizing, and respecting the curricular, administrative, governance, and professional cultures particular to each system. Rather than advancing these differences as impediments to OER adoption, the particularities of each system have been shared as opportunities for greater understanding and, in some cases, as problems to be solved collectively. Given the ambitions of SB 1052 (Steinberg, 2012), this conversation has proven invaluable in shaping and implementing the CA-OERC's OER selection process, peer-review system, research projects, and outreach and education efforts. The salubrious experience of intersegmental collaboration establishes a helpful base for the implementation of AB 798's OER Adoption Incentive Program (Bonilla, 2015).

The experience of CA-OERC also indicates that faculty cultures differ across the California's three public higher education segments. Faculty roles vary among the segments; the faculty workload mix of teaching and scholarly activity seems to be segment-dependent, as does the distribution of contingent and full-time faculty across the curriculum. These factors necessitate different communication and outreach strategies, including different strategies to access teachers and courses for OER adoption.

Different governance structures pose another challenge to intersegmental efforts like the CA-OERC's. More centralized structures may facilitate easier outreach and communication. On the other hand, more decentralized structures might foster stronger institutional identities. The variety of governance structures can both aid and deter intersegmental projects like CA-OERC. In any case, this variety has added a special demand for careful, informed consultation to CA-OERC's more explicit tasks and goals.

Another practical consequence of these differences is that each segment appears to communicate internally in different ways. Transmitting messages -- whether in the form of

survey invitations, solicitations for reviewers, or outreach materials -- requires an understanding of the most efficient and effective pathways from an intersegmental body like CA-OERC to local departments and faculty. Communication among CA-OERC members has been excellent. Yet, in the absence of established communication routes among and, often within the three segments, learning how to "spread the word" has been a significant and frequently time-consuming task for CA-OERC.

In sum, CA-OERC represents a rare and rewarding opportunity for faculty across the three segments to learn more about their colleagues and peer systems, to engage productively with inter-segmental differences and similarities, to pioneer broader, faculty-driven collaboration, and to leverage segmental experience and expertise toward a common goal. Most importantly, CA-OERC's achievements have flowed from a deeply shared, thoroughly intersegmental commitment to our students and their education.

Intersegmental Activity: CSU Perspective

CSU has an enrollment of over 450,000 students at 23 campuses. In pursuing its activities, CA-OERC has taken advantage of previous and on-going OER efforts within the three segments. For instance, the [Multimedia Education Resource for Learning and Online Teaching](#) (MERLOT) has been pivotal to the assembly and configuration of [COOL4Ed](#). MERLOT, a service that the CSU began in 1997 to facilitate finding and aggregating free learning objects, today holds approximately 3,300 open and free textbooks, among other open educational resources. The experience and knowledge gathered in the development and procurement of the MERLOT services facilitated the construction and deployment of the infrastructure for COOL4Ed in a short amount of time. Beyond infrastructural-related matters, MERLOT was also an important model for activities that drive the successful use of OER textbooks, like the [course](#) and [faculty](#) showcases, and the implementation of the peer-review process required in SB 1052 (Steinberg, 2012).

Connecting existing efforts to CA-OERC's effort has been an important component of CA-OERC's work. Establishing a robust OER infrastructure within each segment might, however, greatly improve the use and adoption of open textbooks within California public higher education. In this regard, the CSU offers one possible model. Guided by a clearly-articulated strategy (leveraging content providers, creating capabilities, developing demand, enabling ecosystems) and focused on cultivating campus-based programs, the [Affordable Learning Solutions Initiative](#) ("AL$") has populated the CSU system with key personnel, common goals, and well-defined, coordinated practices and processes. This structure and culture have proven very amenable to CA-OERC's efforts, and has most likely amplified the use and adoption of OER materials in CSU courses and classrooms. Growing similar infrastructures native to the landscapes of the UC and CCC systems could produce similar effects.

Frequently, the communication channels and infrastructure provided by the AL$ program, allowed the CSU segment to find and recruit faculty participants as reviewers, testers and advocates for OER textbooks. AL$ was also a catalyst for [adopting COOL4Ed textbooks](#) (RFP 2/13/2015). By inviting CSU campus-based AL$ participants to adopt COOL4Ed textbooks, CSU faculty can easily access the books evaluated by COERC and report on their experiences in an online portfolio. Online portfolios in different disciplines at different campuses contextualize

the use of OER and, so, encourage adoption.[5] The portfolios will be available as the faculty complete their courses this Fall and Spring.

OER adoption is both a bottom-up and top-down proposition.Thanks to existing infrastructure like AL$ and experience with MERLOT, the CSU has developed expertise in coordinating central leadership with the demands and needs of individual campuses. This capacity will prove especially important for the campus-based OER Adoption Incentive Program at the heart of AB 798 (Bonilla, 2015).

Intersegmental Activity: CCC Perspective

With 113 campuses and more than 2 million students, the California Community Colleges have the largest number of students and faculty potentially impacted by exposure to and adoption of OER texts in the 50 identified courses. While there is great potential, there have been some challenges within the CA-OERC structure and OER identification process. For one, the differing missions of UC, CSU, and CCC led to difficulty identifying 50 high impact courses in common. Second, the communication between CA-OERC members from each segment and their respective faculties is different based on varied structures, so part of the shared experience of the CA-OERC has been learning to better understand these differences and determining ways to work within the unique faculty structures of each system. Finally, the appointment of new faculty to the CA-OERC from the CCC system during Summer 2015, as well as CCC efforts to ensure Academic Senate processes are followed, has resulted in some processes taking longer than they would have under other circumstances. As the new members become more familiar with the work of the CA-OERC, these delays will be reduced.

With challenges come successes. A recent CCC call for OER reviewers resulted in more than 160 responses, including more than three dozen UC and CSU faculty. There is definite interest in and curiosity about OER within the California Community College system, so the continuing work of the CA-OERC is worthwhile. In terms of impact, given the size of the California Community College system, CCC students stand to benefit the most from the work of the CA-OERC and the reduction of costs if faculty choose to transition to OER texts. Continuing the dialogue with our UC and CSU counterparts will also help to ensure that our systems will work together to do what is best for all of our students.

Intersegmental Activity: UC Perspective

Most UC faculty hold that their courses must incorporate their current research (since the UC promises an undergraduate education in the context of a very highly research active university), and for that reason, they often feel that standard textbooks are insufficient for their courses. Inversely, we also found many UC faculty who are already developing their own course material repositories, for instance the vast UC Davis ChemWiki, supported by the National Science Foundation. Indeed, we found several instances of local OER already being used in classes, most notably in practically all UC Composition and Writing courses, as well as in many UC Calculus and Linear Algebra courses. As a consequence, UC faculty and departments who continuously develop their own course materials have less of a perceived need for participation in the intersegmental CA-OERC activities.

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[5] See COOL4Ed existing e-portfolios by reviewers and faculty adopters of OER textbooks.

There are a number of other reasons why there were fewer UC participants in the OER peer review process and in the OER pilot projects than there were CSU and CCC faculty. Of course there are simply fewer UC faculty members in total, compared to all CSU and CCC faculty. There has also been less UC student pressure to adopt low-cost or free materials. UC CA-OERC members did present on OER to the statewide UC student government at several occasions and contacted UC student Regents as well. But in the context of the total cost of a UC education, textbooks represent a smaller percentage than the same materials mean to CCC or CSU students as a share of their overall educational expenses.

Moreover, there was some UC Senate support to get the message out about OER, but there was no administrative support for changing awareness and attitudes in the UC system.[6] UC CA-OERC members met with UC librarians, and system-wide the libraries have been very supportive of OER in general and of the CA-OERC in particular.

The CA-OERC explored potential faculty incentives, but as UC members of CA-OERC changed, each member eventually ran into the same limits on institutional support. There are some faculty in the UC whose job description encompasses the creation and testing of textbooks, but the majority of UC Senate members are far more directly incentivized for research publications or service contributions than for textbook work. When asked to review OER, UC faculty indicated support for the goal of making less expensive textbooks available to students; but given the investment in time and effort in creating a syllabus and curriculum around an excellent textbook, many will only consider switching if an OER alternative is unquestionably superior.

Despite some of the difficulties in motivating UC campus administrations to support faculty exploration of OER textbooks, the CA-OERC was able to secure the cooperation of a significant number of UC faculty. And despite AB 798 (Bonilla, 2015)'s notable omission of the UC, the CA-OERC feels strongly that for OER to gain ground in a statewide, intersegmental perspective, the UC should continue on the CA-OERC.

Governance of the CA-OERC
In the first year, a collaborative spirit among the CA-OERC members accelerated the tackling of CA-OER tasks: a lot of basic parameters were agreed upon, and ground-breaking decisions required to respond to the charge set by SB 1052 (Steinberg, 2012) were accomplished in the first year. However, some CA-OERC members did not return for a second year, which meant repeating parts of the collective learning curve; this slowed the pace of the CA-OERC. In addition, while the CA-OERC has staff support, it does not have a Senate analyst who would deal with regular reporting.

FOUNDATIONAL RESEARCH

In order to reach the goals of SB 1052 (Steinberg, 2012), the CA-OERC had to perform research on awareness about and perception of OER materials, student and faculty reading practices, learning capabilities using digital materials, faculty integration of OER materials,

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[6] Some UC CA-OERC members also encountered obstacles utilizing course release funds, which all CA-OERC members earned by contributing to the CA-OER effort.

faculty and student use of OER and digital materials, IT resources required to teach with OER materials, and the pedagogical praxis required to teach with OER textbooks. To facilitate this research, the CA-OERC created common definitions of OER terms, created and distributed a survey to faculty and students, conducted research on reading practices, held focus groups with students and faculty, conducted (ongoing) a pilot project with a select group of faculty. Discussion about the results of that research are forthcoming in February 2016 with the publication of a White Paper to coincide with the implementation of AB 798 (Bonilla, 2015). For brevity's sake, discussion of this research is limited to the appendices attached:

- Appendix A: Readability Report
- Appendix B: OER Definitions - Defining Terms
- Appendix C: Results of faculty & student surveys
- Appendix D: Focus Group Queries & Accompanying Research

ACHIEVEMENTS SPECIFIC TO SB 1052 (Steinberg, 2012)

California Senate Bill 1052 (Steinberg, 2012) ("Public postsecondary education: California Open Education Resources Council") was signed into law by Governor Brown on September 27, 2012.

Below, you will find the duties charged to CA-OERC and the CA-OERC's progress on these charges.

A. SB 1052 (Steinberg, 2012) declares that: "The bill would require the California Open Education Resources Council (CA-OERC) to determine a list of 50 lower division courses in the public postsecondary segments for which high-quality, affordable, digital open source textbooks and related materials would be developed or acquired, as specified, pursuant to the bill."

- CA-OERC developed criteria for selecting 50 highly-enrolled courses common across the three segments and compiled a list of these 50 courses (online document) in Spring of 2014. These criteria include:
  - Highly enrolled (see C-ID pathways)
  - The course works for as many campuses as possible following the designation for general education courses:
    - critical thinking
    - oral communication
    - quantitative reasoning
    - written communication
  - The course selection is likely to generate significant textbook savings
  - Relatively consistent across textbook products for these courses
  - The course selection provides opportunities for faculty to augment open textbooks
  - Conducive to discipline-based pedagogies
  - The courses selected need to have access to multiple OER textbooks for any given course

- From Spring 2014 into Fall 2014, CA-OERC identified more than 150 appropriate, OER textbooks for these 50 courses with the understanding that "low-cost" would represent a significant savings from the commercial textbooks being used.
- Through Fall 2015, CA-OERC, in conjunction with information specialists, identified CC-BY, low cost, and/or free OER "textbooks" (see Appendix B for definition of "textbook) for 50 courses.
- **Issue** (selecting more courses): When the review work began in Spring 2014, CA-OERC members identified 57 courses based on several factors (see the full policy): C-ID.net descriptors, highly-enrolled courses that articulate across all three segments, course generates significant savings, course has multiple OER textbooks, among other criteria. As is apparent from the list of 50 courses and reviewers, some selected courses became ineligible for a variety of reasons (lack of reviewers; lack of OER textbooks). For this reason, in Fall 2015, CA-OERC members selected five more courses and identified corresponding OER textbooks. In light of AB 798 (Bonilla, 2015), the reviews on COOL4Ed have become even more integral to encouraging adoption of OER textbooks.
- **Issue** (articulation): Articulation is not seamless across all three segments; the C-ID helped with identification of highly-enrolled courses, but caused some issues with the UC system because they do not always offer these courses in the same discipline as listed in the C-ID.
- **Issue** (licensing/authorship): CC-BY for OER textbooks has not been widely accepted as a valid form of licensing. A few commercial publishers (e.g., Wiley) are offering "digital" textbooks that can be re-mixed by faculty; however, these textbooks are not low-cost. The selection of OER textbooks remains problematic, but with the education and awareness of faculty members in using and authoring OER textbooks, the CA-OERC anticipates wider authorship of OER textbooks in the next two years, especially in areas where need is great (e.g., Child Development, Literary Studies, Chemistry, and Mathematics, to name a few). The Congressional Bill, Affordable College Textbook Act (S.2176/H.R.3721), provides funds to support development of OER textbooks at individual campuses; it was introduced to both houses of Congress for a second time in October 2015.
- **Issue** (cost): The CA-OERC grappled with low-cost and free for OER textbooks but settled on a policy of reasonable cost with a predilection towards free OER textbooks. However, low-cost and free OER textbooks does not take into consideration the cost of the apparatus for reading OER textbooks in digital format; nor does this policy consider the cost of print-on-demand.
- **Issue** (highly-rated textbooks missing): As can be seen by the list of 50 courses and reviewers, some courses do not have a viable textbook that was highly ranked by all three re. See list of highly rated textbooks (textbooks that earned an overall 4 or above by faculty reviewers in all three segments). However, this list does not take into consideration the variability in needs by separate segments. For instance, a CCC faculty member might consider an OER textbook acceptable for a particular course while a UC faculty might consider the same OER textbook unacceptable for a similar course (regardless of the C-ID articulation agreement). Some faculty found that a chapter or two was acceptable for his/her audience of students but that the OER textbook on whole was not acceptable. These variabilities create a dilemma when searching for OER textbooks. The

remixability of OER textbooks becomes increasingly necessary with these findings.

B. SB 1052 (Steinberg, 2012) declares that: "The bill would also require the CA-OERC to review and approve developed open source materials and to promote strategies for production, access, and use of open source textbooks to be placed on reserve at campus libraries in accordance with this section."

The CA-OERC's survey of faculty across CCC, CSU, and UC demonstrated that faculty were concerned about the authority, reliability, and peer review of OER textbooks. The CA-OERC created a system by which OER textbooks for 50 highly-enrolled courses across the three segments could be rigorously peer reviewed. All of the peer reviews are available, including the faculty's name and institutional affiliation. We anticipate completing reviews of all selected textbooks for each of the 50 courses by conclusion of December 2015 with online access to the reviews by December 30, 2015. The below criteria is publicized on COOL4Ed:

1. **Selection of the 50 courses**: The CA-OERC relied upon the Course Identification list (C-ID) of approved courses along with their descriptions. Since the C-ID identifies 280 courses, the CA-OERC's task was to choose courses based on: 1) courses that are highly enrolled and 2) courses that have the most impact across the three segments. To narrow the selection even further, the CA-OERC used general education criteria to select courses for textbook reviews. General education criteria focuses on: 1) critical thinking, 2) oral communication, 3) quantitative reasoning, and 4) written communication. After some investigation, the CA-OERC found that the textbooks for these 50 courses should generate significant textbook savings. To encourage faculty adoption, the CA-OERC endeavored to choose courses with textbooks that could be augmented by faculty, though these types of textbooks and their digital platforms are not widely available. Finally, the CA-OERC selected courses that have access to multiple OER textbooks, though authoring and publishing of OER textbooks has not yet become widespread throughout all disciplines.
2. **Selection of OER Textbooks**: OER textbooks to be reviewed in conjunction with each of the 50 courses were selected based on the following criteria: 1) Creative Commons license (CC-BY), if possible; 2) free or low cost ($30 or less); 3) able to be re-mixed, if possible (we haven't found many of these); 4) updated regularly; 5) offered in at least 2 different formats (e.g., online/pdf); and 6) maintained in an easily accessible and sustainable environment with a persistent URL.
3. **Recommend an OER Textbook** that fits the above criteria.
4. See our list of **Courses, Textbooks, and the Schedule for Review Phases**.
5. **How to Become a Reviewer**: Fill out the faculty survey and indicate that you'd like to review for this project (the last question in the survey). We will contact you with a request for more information. If selected for a panel (these can be competitive!), we will provide access to all of the textbooks, the review rubric, and a stipend for your reviews ($250/textbook with a minimum of 3 textbook reviews).
6. **Selecting Review Panelists**: Panelists are drawn from faculty across CCC, CSU, & UC. These reviewers are self-identified based on response to the faculty

survey. The selection of reviewers is competitive but is based on a balanced criteria: 1) one panelist from each of the three segments (CCC, CSU, UC); 2) balance of experience with OER materials; 3) balance of place in career. The resulting reviews are public along with names & institutions of each faculty member. (See reviews on the COOL4Ed website.) The reasons for making the the reviewers' identities public is discussed in the Reviewer's Bootcamp video.

7. **What's Involved in Being a Reviewer**? Watch the Reviewer's Bootcamp Video.
8. **What is the Review Rubric**: Take a look at a sample Review Rubric.

Since Spring 2014, CA-OERC has worked with COOL4Ed to make all peer-reviewed OER textbook reviews available to students, faculty, and libraries. The COOL4Ed website currently features reviewed materials for 35 of the 50 selected courses and will host reviewed materials for all 50 courses by December 30, 2015 (approximately 400 reviews). Links to the original materials are on the COOL4Ed website. Most of the materials are licensed as CC-BY, allowing faculty to print, change, share and download them for free. (See Map of Participants (online map).)

Though the CA-OERC endeavored to commission one reviewer from each segment for each textbook, Council members were not always successful in identifying and convincing their peers to participate. Courses without reviewers as of Dec 1, 2015:

from CSU:
- Precalculus
- College Algebra
- Introduction to Media Aesthetics

from CCC:
- Business Information Systems
- Business Communication
- Linear Algebra

from UC:
- Human Anatomy; Human Physiology; Human Anatomy & Physiology
- College Physics Algebra Based A
- Introduction to Physical Geography, with Lab
- Cell and Molecular Biology (for majors)
- Human Sexuality
- Human Physiology
- Intro to Biology
- Analytical Chemistry
- Introduction to Education
- Managerial Accounting
- College Algebra
- General Chemistry for Science Majors Sequence A
- Linear Algebra

C. SB 1052 (Steinberg, 2012) declares that: "The bill would require that the CA-OERC regularly solicit and consider, from each of the statewide student associations of the University of California, the California State University, and the California Community Colleges, advice and guidance on open source education textbooks and related materials, as specified."

- Student outreach has been difficult primarily because student governance shifts each year with new student participants. Approximately 200 students responded to the survey though all student leaders in all three segments were sent the survey information in late March 2014. For this reason, CA-OERC members began presenting at student leadership meetings.
- As a new initiative to capture student input, CA-OERC began holding focus groups at statewide student government meetings. The first two focus groups were held at the CCC General Assembly, May 1, 2015. Eight students attended one session; more than fifteen students attended another simultaneous session. In August 2015, a focus group with CSU students was held.
- Focus groups for faculty from all segments were held in June, July, and August 2015. (For more information about the focus groups overall, see below.)

D.   SB 1052 (Steinberg, 2012) declares that: "The bill would require the CA-OERC to establish a competitive request-for-proposal process in which faculty members, publishers, and other interested parties would apply for funds to produce, in 2013, 50 high-quality, affordable, digital open source textbooks and related materials, meeting specified requirements."

- This section of SB 1052 (Steinberg, 2012) is superseded by AB 798 (Bonilla, 2015)'s activities.

OUTREACH & EDUCATION

Outreach in all three segments has been challenging due to the shifting leadership of student governance and the inability to reach all faculty in all three segments with a single communication apparatus. Due to these issues, the CA-OERC established a social media presence, continued presentations to faculty and student organizations, and explored partnerships with existing entities.

CA-OERC members presented to both faculty and students at the following conferences and meetings (and continue to present into 2016 without CA-OERC funding support):

May 2014, CSU Academic Senate Plenary (Harris)
June 2014: CSSA, Monterey Bay - students (Guthrie & Takeshita)
July 2014: UCOP, Oakland: UC Academic Council (Krapp)
October 2014: UCSA, San Diego - UC Student Government (Krapp)
October 2014: UCOLASC, UCOP Oakland - UC Academic Senate (Krapp)
October 2014: Leveraging Technology to Support Students, CSU CO (Daly)
November 2014: OpenEd Conference, Washington DC (Daly & Kennedy)
December 2014: UC Academic Senate Assembly Meeting, Oakland (Siverson)
December 2014: DET/CHE Conference, Long Beach (Daly & Kennedy)
February 2015: TAC Conference, San Diego (Harris)
April 2015: SFSU Affordable Learning Solutions Conference (Hanley)
May 2015: CCC Student Assembly, Ontario - students (Guthrie & Takeshita)

June 2015: CSU Course Redesign with Technology Faculty eAcademy (Bonilla & Kennedy)
August 2015: CSUnity Conference, Chico - students (Guthrie)
October 2015: Innovation and Collaboration Expo on Teaching and Learning, SJSU (Harris & Kennedy)
October 2015: SJSU Open Access Conference (Harris & Bonilla)
October 2015: Educause Annual Conference (Kennedy)
October 2015: UCR Academic Senate on Library, Information Technology, and Scholarly Communication Meeting (Takeshita)
November 2015: OpenEd Conference, Vancouver (Hanley, Bonilla, Guthrie & Davison)
November 2015: WCET Annual Conference, Denver (Kennedy)
November 2015: Southern California Conferences for Undergraduate Research (Guthrie)
December 2015: Online Educa, Berlin (Kennedy)
January 2016: Instructional Design and Innovations Institute (Aschenbach, Crump & Davison)
February 2016: UCOLASC, UCOP Oakland - UC Academic Senate (Krapp)
April 2016: ASCCC Online Education Regionals (Aschenbach, Crump & Davison)

In December 2014, COOL4Ed was awarded the [DET/CHE](#) award for [COOL4Ed – Outstanding Instructional Technology Website](#).

In November 2014, the CA-OERC started to proactively use Facebook for outreach efforts. In the first 2 months of activities, the [CA-OERC main Facebook page](#) grew from 60 "likes" to approximately 3,000 "likes." Once users "like" the page, they subscribe to receiving ongoing communications from the CA-OERC. Approximately 45% of the people who subscribed to receive information are between 18-25 years old, and approximately 69% are between 18-35 years old. These percentages indicate that Facebook, as an outreach tool, targets students better than faculty. The cost per like of this campaign was approximately 90 cents.

After the early days of January 2015, the CA-OERC stopped the advertising campaign but continued to post on Facebook. Since then, the number of "likes" has only grown marginally (see image below). This marginal growth indicates that advertising in Facebook considerably increases the ability to reach people, and inform them about open educational resources and the activities of the CA-OERC. Considering that other outreach efforts have achieved limited results, continuing an advertising campaign on Facebook could be an appropriate way to inform people about COOL4Ed, especially our students.
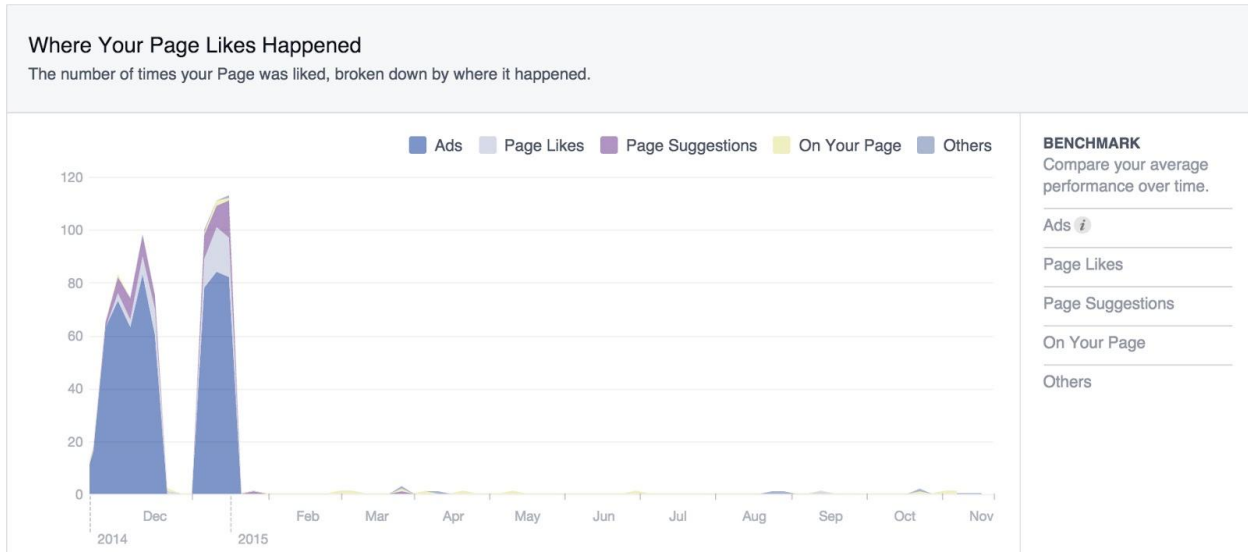
Number of "likes". The CA-OERC's advertising campaign in the initial 2 months obtained most of the "likes" (subscribers) for the entire year.

In addition to establishing a Facebook and Twitter (@CA_OER) presence, the CA-OERC established an FAQ on the CA-OERC ICAS website to facilitate ease of education about the CA-OERC's projects and objectives.[7] The CA-OERC also publicized its course selection, OER textbook selection, reviewer selection, and rigorous review process on COOL4Ed.

A wide variety of partnerships were discussed in order to aid in education and outreach. These include, but are not limited to:

1. Partnering with bookstores, specifically California Association of College Stores
2. Partnering with OpenStax to work with bookstores
3. Existing connections
   a. Leverage Ed Tech on each campus
   b. Leverage library deans on each campus
   c. Leverage UC Deans of Undergraduate Studies
   d. Leverage existing OER programs
      i. CCC: Online Education Initiative
      ii. UC: teaching professor
      iii. CSU: Affordable Learning Solutions
   e. Leverage C-ID process
   f. Model: UCLA Adoption Project: Initiative description, the application
   g. Model: CSU AL$ RFP

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[7] From October 15-November 16, the CA-OERC web pages have received 172 views according to analytics generated by the webmaster.

ONGOING PROJECTS THROUGH FALL 2015

In Spring 2014, the Babson Research Group Survey found that faculty face many deterrents to adopting open educational resources, with the top reasons being:

1. no comprehensive catalog
2. too hard to find what I need
3. not enough resources for my subject
4. not knowing if I have permission to use or change.

The survey conducted by the CA-OERC in 2014-2015 found that 60% of faculty have never heard of or have only a tertiary awareness about OER textbooks and the OER movement in general. (This has been demonstrated by another Babson survey released in 2015.) Only 12% of faculty from CCC, UC, and CSU systems have adopted all or parts of an OER textbook. 80% of faculty cite that academic quality is the biggest concern in adopting OER textbooks. 86% of faculty consider currency of information in OER textbooks to be very important. 66% are concerned about the effort it takes to find, review, and select OER textbooks. Overall, 72% are willing to adopt OER textbooks with another 20% remaining neutral.

Though faculty in the CCC, CSU, and UC systems are largely unaware of or have not explored the possibility of OER textbooks, the faculty are overwhelmingly open to the possibility. However, faculty need professional development assistance to revise their existing materials to accommodate OER textbooks.

A.   Pilot Project (Fall 2015)

Full details are available: Fall Pilot Project (online document)

In Fall 2015, the CA-OERC began a pilot project to study faculty adoption of OER textbooks. After holding two of three webinars, participants are clear on their duties. The selected participants are keeping track of workload, student success, learning outcomes, and more throughout the semester/quarter. Through this study, the CA-OERC will discover what helps or hinders OER adoption.[8] The field study will also include students' perceptions of OER textbooks. While studies have been commissioned about the awareness surrounding OER textbooks, no single study has been conducted to address professional development, workload, and student implementation strategies, especially in the CCC, UC, and CSU segments. The Fall Pilot Project will provide an understanding of what services are necessary to support faculty adoption of OER textbooks -- lessons that will then be applied to the development of proposals for AB 798 (Bonilla, 2015) in Spring 2016.

Project Documents:
- project description
- e-Portfolio description

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[8] Preliminary issues and concerns, successes, and observations are available and will be included in the White Paper.

- [project timeline](#)
- [description of webinars](#)

Originally, this project was budgeted for 30 participants and began with 28 participants. As of November 2015, the project has 17 participants: 12 from CCC; 7 from CSU; and 0 from UC. The one UC participant had to excuse himself from the study due to time limitations. Participants have had previous experience with OER materials and are willing to adopt at least one chapter of an OER textbook. Each textbook (with the exception of one) identified for use by each faculty member costs zero dollars. With the exception of two courses, all courses have a C-ID correlation and are in the following disciplines: Art History, Biology, Business Communications, Child Development, Communication Studies, English, History, Humanities, Marketing, Math, Physics, and Sociology.

Because the project involves human participants, documentation was submitted and approved by the CSU Institutional Review Board (approval extends to all segments).

The Pilot Project focuses on the efforts of faculty across all three segments to address faculty workload issues from the perspective of faculty who have already had some experience with implementing, using, and relying on OER textbooks. A White Paper will be distributed in February 2016 to publish the results of both this study and the general outcomes of the CA-OERC's work in 2014-2015.

B.   Focus Groups - General Description

While this will be an important step forward, the CA-OERC found that it needs to hear from those who have not used OER materials or textbooks in their courses. Similarly, the CA-OERC would benefit from responses by students beyond the initial survey conducted in Spring 2014. By speaking with faculty and students, the CA-OERC has discovered why OER adopters were successful and motivated to adopt in addition to finding out why non-adopters do not use OER and what would convince them to do it. This information will help to design a request for proposal and outreach program to facilitate and implement [AB 798 (Bonilla, 2015)](#). In addition, these efforts will give evidence to obstacles and triggers for OER text adoption.

Each focus group session consisted of 3-6 participants and lasted 50 minutes per session. Faculty participants were provided a stipend of $100 each. For the OER-experienced groups, the participants were selected from a pool of participants who indicated their willingness to participate on the designated dates as well as their level of experience with OER materials. For the student focus groups, various CA-OERC members visited student governance meetings for the CSU and CCC. The CA-OERC was unable to schedule a UC student focus group after conferring with UC student governance. The faculty who are not aware of or who have not used OER textbooks or materials are a more difficult group to assemble. The CA-OERC visited faculty governance meetings in person in all three segments in order to attract participants and conduct the focus groups on-site.

C.   Student Focus Group - Informal Findings

The first focus group occurred at the CCC student legislation meeting on May 1, 2015 in Ontario (facilitated by CA-OER members, Chikako Takeshita and Ruth Guthrie). While attendance at these two focus groups exceeded expectations, the facilitators found that most participants did not have OER experience, with the exception of the Computer Science students who had used online textbooks because traditional textbooks are too expensive. These students expect learning modules to be included in an OER textbook. In addition, they requested OER textbooks to be distributed via PDF for easy access, cost, and annotation/highlighting capabilities. Most CCC students cannot afford a computer or laptop. They can afford a Kindle, from which they can access a PDF. Most students like digital for searching purposes. If searching isn't too important, most students prefer print for deep learning.

In August 2015, Ruth Guthrie led a focus group with CSU students and was able to informally assess differences between CSU and CCC students as follows:

- CSU students said they never read a book on a phone but, the CCC students did it frequently.
- CSU students really liked printed books for studying.
- CSU students were not as forthcoming as the CCC students about pirated textbooks. But, after the recorder was off, they all said they did it. But, they also said they were more than willing to purchase the book legally if the price was fair.
- The CCC students predominantly said the publishers were the problem. The CSU students spoke about the University being the problem.

Impact on CA-OERC Research
1. CA-OERC needs to determine how students prefer to annotate and take notes while reading during fall pilot webinar.
2. It would be interesting to determine OER use between Science vs. Humanities.

D.   Faculty Focus Groups - OER Experienced

Using existing contact information for faculty who volunteered to review OER textbooks, CA-OERC sent a call for participation that included a brief Google Form survey to assess each potential participant's involvement with OER. Of the 443 invitations, 100 potential participants responded by the deadline with 3-6 faculty members attending each focus group.

Each group consisted of a variety of the following:

- Two faculty per segment, if possible (though only 12 UC faculty responded & many UC faculty dropped out before the meeting date)
- Discipline (a variety is optimal)
- Place in career (new to teaching, assistant/associate/full professor, stakeholder in the department/college/university, potential OER champion)
- Level of employment (e.g., lecturer/part-time or full-time faculty)

During the focus groups specifically geared towards OER-experienced faculty, the following are the primary objectives. (See Appendix D for the focus group queries and accompanying research.)

Purpose:
1. Understand how to craft messages for faculty and students to increase the adoption of OERs
2. Identify barriers for adoption so they can be addressed and/or resolved
3. Identify incentives for adoption so they can be addressed and/or created

Transcripts and analysis of these faculty focus groups will be included in the White Paper to be distributed in February 2016.

F.   Faculty Ambassadors

In anticipation of AB 798 (Bonilla, 2015), the CA-OERC created the Campus Ambassadors program, a program that requires additional funding to be acquired in Spring 2016.

The OER Ambassadors program seeks to increase faculty use of high-quality, affordable, digital open source textbooks through the creation of a cohort of ambassadors from across the three segments of California public higher education. OER Ambassadors are campus leaders who champion the adoption of OER textbooks on their respective campuses, engage faculty and other stakeholders in developing and sharing best practices and strategies for OER use, develop and share strategies for campus outreach, and participate in an intersegmental community of OER advocates and experts.

Campus Ambassadors will be selected each spring, starting in Spring 2016, to serve an annual term to begin at the start of the next academic year as ambassador. The OER Ambassadors' primary roles are to:

- Promote awareness and adoption of OER textbooks on their campuses.
- Encourage and aid the adoption of OER textbooks on their campuses.
- Participate in an online professional network that spans the three segments and focuses on sharing OER campus experiences, collaborating to increase OER textbook adoption, and communicating the significance of OER textbook adoption within and without their campuses and segments.
- Participate in existing affordable learning and OER initiatives on their campuses.

AB 798 (Bonilla, 2015) Infrastructure & Implementation

With the signing of AB 798 (Bonilla, 2015), the focus of the CA-OERC's work in November and December 2015 shifted to crafting a proposed infrastructure for the implementation of AB 798 (Bonilla, 2015), including but not limited to establishing a grant application process in addition to a mentoring process to foster successful applications. With the AL$ program as a guidepost, review criteria, deadlines, etc. are being recommended in order to meet the requirement of issuing awards 60 days after submission of an application (with a June 30, 2016 deadline for all applications). With a potential of 100 awards and maximum $50,000 award for this first round, the CA-OERC will need to be judicious in its efforts to guide campuses towards successful applications complete with cost analysis, usability/adoption metrics, and other benchmarks being carefully met. The CA-OERC's recommendations will be submitted to the CSU Chancellor's Office for approval and eventual distribution (according to the governance structure of AB 798 (Bonilla, 2015)).

There has been some discussion about the efficacy of retaining the three segments on an intersegmental project due to the elision of the UC in AB 798 (Bonilla, 2015). Per the CA-OERC meeting in September 2015, including the existing UC faculty on the CA-OERC continues the goodwill work of this unique and productive intersegmental project. In addition, the existing UC CA-OERC members are now experts in the area of OER implementation, adoption, outreach, and education. Both the CSU and the CCC CA-OERC members agree that including the UC in the implementation of AB 798 (Bonilla, 2015) will benefit the purpose and spirit of SB 1052 (Steinberg, 2012) as well as continue the good work of bringing the three segments of California higher education together.

LESSONS LEARNED FROM SB 1052 (Steinberg, 2012)

Continuing Rigorous Peer Reviews of OER Textbooks
The system of rigorous peer review for OER textbooks is an essential element for faculty adoption of OER, but it requires a significant amount of effort to administer. Though some publishers, such as OpenStax and BCcampus, are dedicated to providing a space for peer review of their OER textbooks, this responsibility needs to be borne by institutions, not publishers. In its work, the CA-OERC has created a rigorous peer review rubric and integrated it with an infrastructure for selecting OER textbooks, selecting reviewers from each of the three segments, managing the review process through Google Forms, converting and facilitating the reviews for inclusion on COOL4Ed -- in addition to the administration of reviewers' stipends across three segments. Though the actual review system and rubric have been established, a significant amount of administration by CA-OERC Chair, Katherine D. Harris, administration staff, Theresa Dykes, and COOL4Ed manager, Leslie Kennedy, has to occur in order to mount approximately 400 reviews on COOL4Ed. Over the 4-week process of a review, all three are in weekly contact with reviewers to ensure that the OER textbook reviews are submitted in a timely fashion. All three segments will need to continue this good work of reviewing new and revised OER textbooks after the conclusion of the CA-OERC's work and/or funding.

OER and PR
OER in general suffers from a lack of notoriety, a lack that the CA-OERC spent a considerable amount of time attempting to overcome. Faculty are often already using OER materials but are not aware that they are participating in OER. Though proponents of OER have been working to publicize OER as well as open access, OER in general still suffers from a lack of extensive outreach and education.

The absence of a robust, ongoing public relations effort haunts CAOERC's achievements. For instance, there still has not been a press release to publicize CAOERC and COOL4Ed. An ongoing, public campaign to highlight the innovative, successful work of the Council, especially in saving millions of dollars for California undergraduates and their families, would raise the UC-CSU-CCC profile and help to create a public constituency for OER. Other OER projects (like OpenStax and BCcampus) have developed and disseminated professionally-designed marketing materials for internal and external distribution. This has given their projects -- in the case of BCcampus, a project much smaller in scale than CAOERC's -- a much wider audience and luster.

In hindsight, a professional, well-executed marketing and PR plan was beyond the time and capacities of CAOERC; it should have been integral to the Council's work from the very beginning. Education and outreach efforts should continue beyond the SB 1052 (Steinberg, 2012) expiration date. Likewise, a promotion and marketing campaign should still be developed and deployed.

Communicating the CA-OERC's Progress
One issue has been the differentiated PR offices of the three segments. To push out a press release meant filtering the language through ICAS, and then through the three segments' PR offices. Even though each segment was committed to the CA-OERC, the message to be distributed by each segment became impossible to craft and distribute. In future efforts, a consolidated effort to distribute timely press releases about an intersegmental activity is essential to publicizing this type of good work.

Though the CA-OERC has established an online area that provides quarterly progress reports in 2014-2015 (http://icas-ca.org/progress-reports), key stakeholders are not being made aware of those reports and the CA-OERC's progress. In two separate instances in 2015, a lobbyist and an interested stakeholder have publicly declared that the CA-OERC has accomplished nothing. When both were made aware of the progress reports as well as a brief summary of the CA-OERC's accomplishments, the tenor of the conversation changed to discuss the future of OER and the progress of California's efforts in public higher education. Though the CA-OERC did everything possible to highlight their progress, the distribution of progress reports needs to be wider with a specific focus on regularly updating key stakeholders, such as the Governor's office and state legislators.

Continuing Beyond SB 1052 (Steinberg, 2012) Projects
Before AB 798 (Bonilla, 2015) was signed into law, the CA-OERC crafted plans for Year 3 activities, keeping in mind that the work of CA-OERC would eventually need to be distributed to and owned by individual segments and institutions in order to continue the progress towards

adoption of OER textbooks. In working towards the successful implementation of these goals, as well as the implementation of AB 798 (Bonilla, 2015), the CA-OERC recommends continuing with the following projects in Spring 2016:

- Work with COOL4Ed to create an OER repository in MERLOT to complement OER textbooks
- Continue inviting faculty to create e-portfolios to demonstrate adoption, implementation, and use of OER materials (similar to COOL4Ed existing e-portfolios)
- Recommend usability measures for adoption of OER textbooks
- Continue outreach and education with the proposed projects:
  - Case study of one campus and its use of OER
  - Reach out to David Harris of OpenStax to determine faculty adoption of OpenStax textbooks in CA and nationwide, and authoring/curating
  - Create adoptability measurements
  - Create OER packets for new hires
  - Measure awareness and behavior
    - Update the faculty survey to measure any change in faculty awareness; include questions for faculty who have already implemented OER
    - Create and distribute a student survey on piracy - under what conditions would they not pirate a textbook?
  - Create a list of Event dates - list of opportunities for faculty to participate in OER events (conferences, showcases, special OER issue of a journal) to give faculty a variety of ways to share their expertise and experiences.
    - Consider enlisting those not chosen for focus groups
- RFP for Creation of Textbooks (requires external grant funding)
  - Recommend Authoring platforms
  - Consider leveraging OpenStax, FlatWorld, and/or Saylor Foundation
  - Create textbooks across segments (faculty authors collaborate across segments)
- Work with COOL4Ed to build a digital repository of assignments for OER textbooks in MERLOT
- Build checklist of OER friendly campuses, with tips on how to implement OER friendly policies, for example:
  - Library offer printing
  - Bookstore offers competitive pricing
- Create policy on when to re-review an existing textbook
  - Require authors/publishers to create a "change log" of updates
  - Possibility of AP high school teachers also paying attention to reviews
  - Re-review OER textbooks that have changed after the textbook has been reviewed

CONCLUSIONS

In collaboration with COOL4Ed, CA-OERC has successfully assembled, selected, peer-reviewed, and curated a massive collection of over 200 OER textbooks for use in 50 of the most highly-enrolled courses across the three systems (see course showcase). This has been achieved within a remarkably short time frame. Faculty adoption and student use of these textbooks will however require a longer time frame, as faculty learn more about OER, about CA-OERC's textbook collection, pilot OER textbooks, and begin to integrate these textbooks into courses, pedagogies, and curricula. In other words, realizing the full impact of SB 1052 (Steinberg, 2012) raises serious issues about the sustainability of CA-OERC's work.

These issues include:

Value of the CA-OERC collection depends on its currency
New OER textbooks will continue to be published. As institutions respond to student demand and other factors, curricula and courses may also shift. In collaboration with COOL4Ed, ongoing editorial work will be necessary to assure the quality of CA-OERC's collection. Cooperation amongst the UC, CSU, and CCC to assure the currency of OER materials in MERLOT will continue to depend on governance structures and infrastructures that connect systems, people, and OER materials.

Widespread use & adoption of OER textbooks depends on education & outreach
A robust, high-quality OER collection is only one part of the sustainability issue; without faculty adopting OER textbooks and students using OER textbooks in courses and classrooms, CA-OERC's and COOL4Ed's OER collection will become a field of dreams. Efforts to educate faculty about the availability and quality of OER textbooks will need to continue, if the three systems and State government hope to continue to harvest the benefits of CA-OERC's work. Continued outreach -- including promotion of OER, case studies of OER adoption, guides to OER adoption and use, as well technological support -- will also be critical to sustaining CA-OERC's work beyond a two or three year timeframe.

Increasing & strengthening OER textbook adoption depends on feedback
Given the diversity of faculty, curricula, and pedagogies across the three systems, the resilience of California's OER textbook innovations will depend on ample communication between OER users, the CA-OERC, and COOL4Ed. Continued research, survey, forums, and workshops will enable the CA-OERC's textbook collection to respond more effectively to local conditions of adoption and use. SB 1052 (Steinberg, 2012) included a provision for the production of OER textbooks; time and labor constraints rendered this ambition impossible. OER production (at a variety of scales) should however still be considered as an important component of sustainability, especially as OER production represents a direct way for campuses to create and remix OER textbooks to meet particular course, classroom, and curricular demands.

Sustainability of OER textbook use and adoption depends on resources
Making OER textbooks into a familiar option for faculty and common experience for students requires adequate, consistent support. AB 798 (Bonilla, 2015) and its OER Adoption Incentive Program represent an important step forward in this commitment. However, more may be required. Campuses and systems might need to consider durable incentives and types of recognition for OER activity similar to the CSU's Affordable Learning Solutions initiative.

Long-term financial support might be achieved through a variety of configurations: direct State funding; system-wide budgeting; campus-based instructionally-related funds; campus- or systemwide student micro-fees. In any case, no OER textbook initiative can survive, much less prosper, without fiscal nutrition.

SB 1052 (Steinberg, 2012), AB 798 (Bonilla, 2015) (Bonilla), and CA-OERC have established California public higher education as a significant innovator in the OER movement. Maintaining this position will require a long-term perspective, prudent cultivation of an emergent OER ecosystem of knowledge, institutions, and people, and, most importantly, continuing leadership.

Appendix A: Readability Report

Focus groups analysis of the factors affecting the use and readability of digital textbooks

The use of digital media in computer networks allows for a different media ecosystem in which, once information has been created by individuals or groups, it can be replicated endlessly and distributed freely. While digital media enables the duplication and distribution of OERs without cost, the actual use of textbooks in a digital format differs from the use of textbooks in print. As we move forward in the process of adoption of digital OERs, it is necessary to understand how faculty and students use digital textbooks and their efficacy in the teaching and learning process.

The analysis of the information gathered in the focus groups corroborate the findings of the initial bibliographic research on the readability of digital textbooks. Overall, the factors affecting the use of digital textbooks can be grouped in 3 main categories: (1) The role of digital literacy and information literacy in the use of electronic textbooks, (2) the varied use of textbooks in different subjects, and (3) convenience factors and the permanency of digital publications.

The role of digital literacy and information literacy in the use of electronic textbooks

The use of computer-based and mobile applications (eReaders) is necessary to read books in a digital format. The types of annotations that can take place in digital textbooks are different from the annotations that can take place in print textbooks. Ereaders allow the ability to highlight content, make textual annotations, and modify the size of text displayed on the screen. At a later time, highlighted content and annotations can be accessed in different ways depending on the application being used. To the contrary, print publications allow handwriting and free hand drawings in a fairly standardized manner. Knowing how to perform well annotation tasks in an electronic device, a form of digital literacy, affects the way in which the digital textbooks are used and how well they can substitute print textbooks. The repagination that takes place when the size of the font of textbooks is altered can result in navigational problems at the time of using the resource.

Three different overall types of computer devices were mentioned in the focus groups: Computer/laptops, tablets, and cell phones. The information collected does appear to indicate that students with stronger digital literacy skills can use the aforementioned devices adequately, while students with lower digital literacy skills have more problems utilizing mobile devices adequately. Information captured in the focus groups indicate that students have a preference for Adobe's Portable Document Format (PDFs) for the use of textbooks in digital format.

Information literacy refers to the ability to utilize information resources adequately. This includes the skills to find and access open educational resources (textbooks, slides, assignments, etc.) online for personal use. Access skills include the ability to connect to the Internet at different times and from different locations. For example, students in the focus groups addressed problems regarding the downloading of textbooks for use in locations where they don't have Internet connectivity. Some educational resources do not offer means for easily downloading the

content to personal computers or devices, giving implicit preference to users with regular access to the Internet.

The analysis of the data obtained offers another dimension that helps address the suitability of digital textbooks based on digital and information literacy skills. Digital textbooks can be created following traditional uses of print media (pages with images that can be highlighted, annotated, or bookmarked) or following the conventions of digital media (traditional print media features plus multimedia, hypertext, interactive applications, collaborative features, etc.) Desktop and laptop computers are able to display both types equally well. However, it is more difficult to read for long periods of time on a computer. To the contrary, applications for mobile devices like tablets and cell phones do not function equally well when multimedia, interactive applications, or interconnectivity features are part of the digital publication. Another issue is related to the type of screens in tablet devices. Tablets with screens that do not emit light were mentioned as better suited for longer periods of time reading; nonetheless, tablets that do not emit light are not well suited for digital publications with multimedia and interconnectivity features.

The varied use of textbooks in different subjects

The initial bibliographic research pointed at significant differences regarding how textbooks are used in different disciplines. The information collected during the focus groups found evidence that this is the case; however, the focus groups didn't provide sufficient information as to determine in a general way what subjects benefit more from the use of books in digital form. The use of a textbook in a specific subject could be related to two different factors: (1) How the content of the subject is structured, for example, a physics textbook versus a literature textbook, and (2) how faculty teaching a specific subject guides the use of the textbook in a course. For example, a faculty member can rely more on students reading the textbook to acquire subject content, and another faculty member can rely more on the end of chapter questions or exercises in a textbook, and use class time to lecture about the subject. The use of a digital textbook to read subject-related content is different from the use of the textbook to work on exercises or end of chapter problems.

In a related matter, the use that students make of a digital textbooks varies at different moments of the course. Students in the focus groups related different experiences in the use of digital textbooks during the semester (exposure to the course content) and before examinations (studying the course content). Digital textbooks appear to be better suited for reading than for studying. For studying purposes, the digital publication appears problematic as it seems that students have a difficult time navigating the electronic content in a nonlinear fashion. It appears that digital and information literacy skills have a positive impact in the ability to navigate an electronic publication for studying purposes.

Convenience factors and the permanency of digital publications

Information retrieved from the focus groups indicates that students appreciate the convenience of digital textbooks. For example, students mentioned preference for digital textbooks because it is easier to carry a single digital device with all of their class material than to carry the physical books. The ability to use the textbooks at any time and anywhere was also mentioned as a convenience factor.

A stated inconvenience of using digital textbooks, mentioned as deterrent for adoption, is the ability to keep the textbooks after the course is finished. Students expressed frustrations for not being able to keep the digital publications used for their coursework. Digital publications appear to be impermanent in two main ways: (1) Students lose access to digital textbooks after a period of time and (2) digital textbooks become inaccessible as applications and electronic devices change.

Recommendations for AB 798 (Bonilla, 2015)

Based on the focus groups findings, and with the passing of AB 798 (Bonilla, 2015), it would be appropriate to provide a toolkit to individual campuses that accelerates the acquisition of digital literacy and information literacy skills that enable or facilitate the use of OERs. It is understood that with time, newer generations of students will possess these literacy skills, Internet access will increase across the student population, and newer reading applications will be developed. A toolkit would be an appropriate solution in the short term to ensure the positive impact of using digital textbooks in courses. Based on the focus groups analysis, it is recommended that the CA-OERC request campuses in the AB 798 (Bonilla, 2015) grant application process to offer low-cost printing solutions for students and faculty who prefer textbooks in a print format. A final recommendation derived from the focus groups findings would be for the CA-OERC to develop a usability/readability survey, for students and faculty who adopt open textbooks, that becomes part of the grant application process for subsequent years.

Appendix B: Defining OER Terms

Although SB 1052 (Steinberg, 2012) provides a broad definition of open educational resources, the CA-OERC found that the definitions and those materials to be included in the work ahead required more specific definitions. By considering prevailing attitudes about OER, the CA-OERC established a foundational set of terms that guided its selection of high quality, low-cost OER textbooks. The full text of this glossary is available on the CA-OERC website: http://icas-ca.org/oer-glossary

- **Textbook:** A manual of instruction in any branch of study that is collected into a single unit.
- **Open Textbook:** Digitized textbooks freely available with nonrestrictive licenses (i.e., Creative Commons)
- **OER:** Open Education Resources: Teaching and learning materials that are freely available online for everyone to use, whether you are an instructor, student, or self-learner. Examples of OER include: textbooks, course modules, syllabi, lectures, homework assignments, lab and classroom activities, pedagogical materials, games, simulations, and many more resources contained in digital media collections from around the world.
- **Open Access:** A publishing model whereby authors make their content freely available with publishing costs met by authors or the institution to which they are affiliated.
- **Low-Cost:** $30 or less (per COOL4Ed textbook selection policy)
- **High Quality:** A criteria set by the peer review rubric created by the CA-OERC and includes high scoring textbooks in the following areas:
  - A. Subject matter (30 points)
  - B. Instructional design (35 points)
  - C. Editorial aspects (25 points)
  - D. Accessibility (25 points)
  - E. Overall impression (10 points)

Appendix C: Results of faculty & student surveys

See [Infographic of results of faculty & student surveys](#) (online pdf)

Two surveys, one for faculty and one for students, were conducted over the 2014/15 academic years. The faculty survey was developed by the CA-OERC and distributed to all three segments via a Google Forms survey. The survey was open from April 2014 to April 2015. The response rate was very low. However, the results do show a snapshot of what faculty concerns with OER are during the 2014/15 academic year. Results may be different for schools already familiar and active in OER adoption. 1,083 faculty filled out the survey, consisting of University of California (30%), California State University (14%) and California Community Colleges (56%). Most people surveyed were full time faculty members (71%). Part-time/adjunct faculty were represented too (28%). People who reported 'other' (1%) were usually representing a librarian. The average years taught by respondents in the survey was 17 years. People who participated in the survey taught mostly lower division courses (63%), though several faculty reported teaching at multiple levels including upper and lower division courses (13%).

Of the faculty that responded, only 13% were using an OER textbook or part of an OER textbook in their courses. 22% responded that they had never heard of OER textbooks. This number is quite a bit better than the results reported by the Babson survey, which indicated that 66% of faculty were unaware of OER textbooks. Most faculty select their own textbooks (88%).This suggests that if you want to encourage adoption, reaching out to faculty is optimal, just like publishers already do. Several items were ranked as very important or important to faculty. Among these were academic quality (98%), currency of information (57%), and pertinence of content to the objectives of the course (71%). Surprisingly, ancillaries (PowerPoint and Test Banks) were only rated "very important" by 224 faculty members. This suggest that this issue may not be as big an obstacle to OER adoption as expected.

Faculty who answered the survey indicated a high willingness to adopt OER Textbooks if they could find one of high quality (75%). The Babson survey showed that faculty had concerns over being able to find OER resources/texts and that they had a desire to find the OER in a centralized repository. Such a resource could alleviate faculty concerns over finding resources. Faculty also indicated that they may be interested in authoring OER textbooks or interested in group authorship. Concerns with the OER publishing process centered around quality issues. These included having the time to develop a text (642), assurance that the text would be professionally edited (481), and support from the administration (506).

The student survey had only 144 responses. The participants were asked to take the survey when members of the CA-OERC visited academic institutions in California. The number of responses is too small a sample to conclude anything. However, the results are reported below. Of the 144 students who took the survey, two were from the UC, 140 were from the CSU, and two were from CCC. Students reported purchasing an average of 4.2 books in fall of 2014 at an average cost of $352.10. Book prices vary by discipline. The number might be skewed higher because of disciplines like architecture and anatomy, where the texts are specialized, graphic, and detailed. Students in the survey had the perception that a free text was about the same as a traditional text in quality, ease of use, and practice materials. Students ranked several items as "very important" regarding free texts. The top three items were "accessible on multiple devices," "online access being free," and "the textbook doesn't expire."

Appendix D: Focus Group Queries & Accompanying Research

1. Perceptions of OER among potential adopters

   For the purposes of promoting the adoption of open textbooks, it is helpful to have awareness of what California faculty and students in all segments understand by the terms "open educational resource," "open textbook," "open resources," "free textbooks," etc: "A critical issue in measuring the level of OER awareness is exactly how the question is worded.

   As previous studies demonstrated, many academics have only a vague understanding of the details of what constitutes open educational resources. Some confuse "open" with "free," and assume all free resources are OER. Still others confuse "open resources" with "open source" and assume OER refers only to open source software."[9]

2. Format preference (Print vs. Electronic)

   It has been found that, while open textbooks are well received, most students prefer to work with a print version than an electronic version. Probable causal factors: Print is a better medium for reading and studying, students studying habits, and information literacy.

   Waters (2014) study shows that students have different preferences based on discipline. The study is fairly large and it is centered on STEM disciplines. If the focus groups indicate the same patterns, we should include in our strategies to facilitate the printing of the textbooks (bookstores?). Also, our selection of books include non-STEM disciplines. It would be beneficial to look for the same phenomenon in disciplines like english, history, etc.[10]

   (1) Can we extrapolate these findings to CA higher education? Is there a preference by discipline?
   (2) What patterns emerge in the use of print and electronic books in non-STEM disciplines?
   (3) When it comes to actual use, understand why digital textbooks are preferred over print textbooks, and vice versa, by discipline? (History/English vs. Engineering/Calculus)

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[9] Allen, E., & Seaman, J. (2014, October 1). Opening the curriculum: Open Educational Resources in Higher Education 2014. Retrieved March 29, 2012, from http://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf
[10] Waters, J. et al. (2014). A Comparison of E-book and Print Book Discovery, Preferences, and Usage by Science and Engineering Faculty and Graduate Students at the University of Kansas. Retrieved March 31, 2015, from http://istl.library.ucsb.edu/14-winter/refereed3.html

Format Preference (by department)
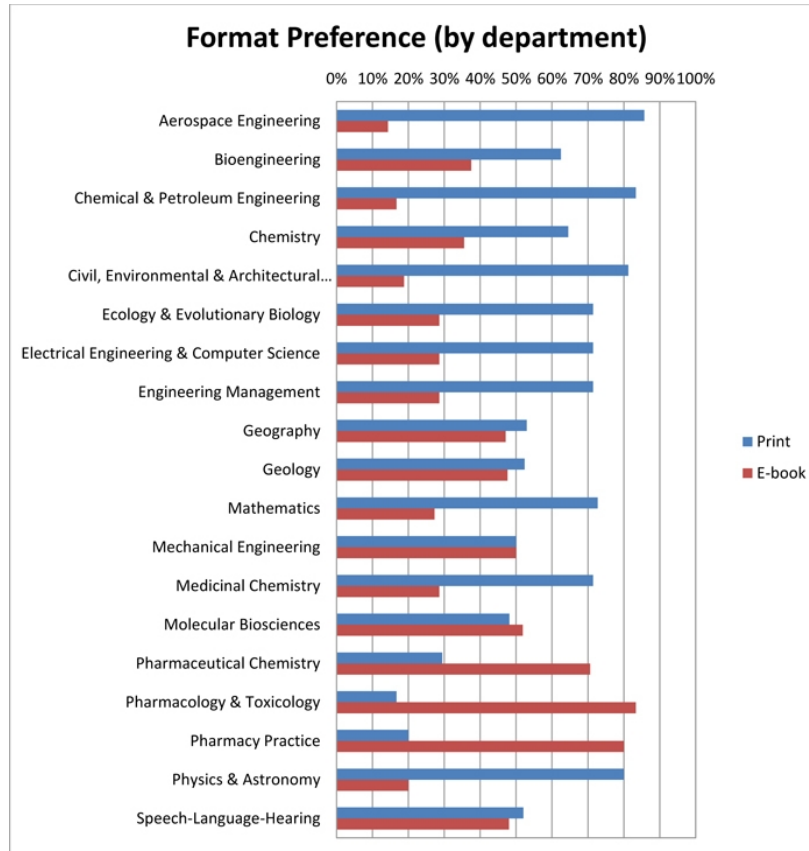
3. Determining time of use and amount used

Understand how (open) textbooks are currently used in a determined course. Are textbooks used in a traditional way (main source of information for the course)? Are textbooks part of a new pedagogical mix that includes other media (for example, videos?): "As to how e-books are primarily read, 60% selected desktop or laptop and 41% of those respondents rarely use e-books with the remaining percentage spread out over daily (14%), weekly (21%), and monthly (23%). [...]

Respondents using e-book readers or tablets are more likely to read a whole book on these devices (68%) as opposed to individuals using a desktop or laptop (28%). Desktop or laptop users are more likely to read 1-3 chapters of an e-book. A large percentage (80%) of those who prefer to print from e-books before reading selected print books as a preference."[11]

4. Information literacy

A large number of open textbooks are accessed and/or used in digital format (ePub, PDF, wiki, etc.) It is assumed that an individual's information literacy will

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[11] Waters, J. et al. (2014). A Comparison of E-book and Print Book Discovery, Preferences, and Usage by Science and Engineering Faculty and Graduate Students at the University of Kansas. Retrieved March 31, 2015, from http://istl.library.ucsb.edu/14-winter/refereed3.html

have an impact on the effective use and enjoyment of electronic open educational resources.

Assess relationship between information literacy and ability to access, use, and print vs digital preference. Below are examples of the questions that measure information anxiety. <u>These can be used as prompts</u> to understand to what degree a participant feels comfortable using computers and information technology.

- I get nervous when I have to find information on the Internet.
- When figuring out new information technology, I have fun and enjoy analyzing all the details carefully.
- I feel tense and nervous when I cannot find clear and concrete solutions to my information needs on the Internet.
- I find it annoying to follow complicated instructions on how to make computer software work.
- Information technology makes my life more enjoyable.
- I feel nervous and anxious about keeping up with new information technology.
- I am angry that technology is restricting to my abstract way of thinking.
- Once I get into a complicated program, it is a pleasant and enjoyable experience.
- While browsing, I feel relaxed and at ease even when I need to cover a lot of material.
- Learning new software when programs are updated is fun and interesting.
- I am terrified when using information technology that I have never used before.
- I hate it that things are becoming so complex with new technology.
- I feel comfortable and confident in my ability to deal with new, complex information technology.
- It is annoying that I am expected to understand and like computers just like everyone else.
- Once I learn how to run a program on my computer, it is frustrating for me to adapt to a newer version.
- It is frightening that everyone else is adapting to information technology better than I am.
- When receiving complex technology-related information, I am afraid I will misinterpret it.
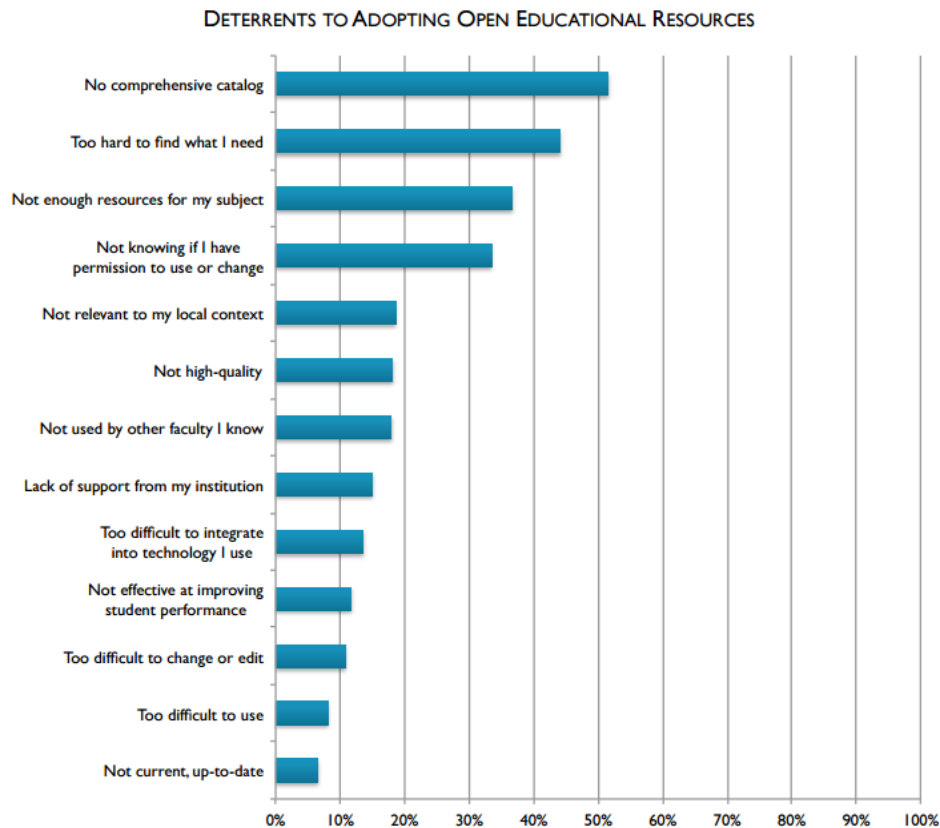- When I run into problems using my computer, I feel comfortable with my ability to find changed for fixing the problems.[12]

5. Factors that could affect adoption among faculty members.[13]

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[12] Wheeless, L., Eddleman-Spears, L., Magness, L., & Preiss, R. (2005). Informational Reception Apprehension and Information from Technology Aversion: Development and Test of a New Construct. *Communications Quarterly, 53*(2), 143-158.

[13] Allen, E., & Seaman, J. (2014, October 1). Opening the curriculum: Open Educational Resources in Higher Education 2014. Retrieved April 10, 2015, from http://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf

Evolving topics for questions
- Usability and information literacy: How did the professor use the open textbook to prepare his/her class?
- Third person effect? Has any of your colleagues shared their open textbook experiences with you? How did it go for them?
- Awareness of new textbooks: How does the awareness of a new textbook begin? How do you get to learn about new textbooks?
- If I were to contact you about an open textbook, what would be the best way to go about it?
- What things do you consider when you decide to review in detail a possible new textbook? For example, do you start by looking at the publisher? The table of contents? Other professors?

DETERRENTS TO ADOPTING OPEN EDUCATIONAL RESOURCES

Deterrent	Approximate %
No comprehensive catalog	~52%
Too hard to find what I need	~44%
Not enough resources for my subject	~37%
Not knowing if I have permission to use or change	~33%
Not relevant to my local context	~19%
Not high-quality	~18%
Not used by other faculty I know	~18%
Lack of support from my institution	~15%
Too difficult to integrate into technology I use	~13%
Not effective at improving student performance	~11%
Too difficult to change or edit	~11%
Too difficult to use	~9%
Not current, up-to-date	~7%

Transcripts and analysis of these faculty focus groups will be included in the White Paper to be distributed in February 2016.