



Open Pathways to Student Success: Academic Library Partnerships for Open Educational Resource and Affordable Course Content Creation and Adoption



Joseph A. Salem Jr.

Associate Dean for Learning, Undergraduate Services, Commonwealth Campus Libraries, University Libraries, The Pennsylvania State University, 510C Paterno Library, University Park, PA 16802-1812, United States

ARTICLE INFO

Article history:

Received 7 July 2016

Received in revised form 5 September 2016

Accepted 17 October 2016

Available online 20 October 2016

Keywords:

Open educational resources

Student success

Affordable course content

ABSTRACT

This paper explores the current state of open educational resources (OER) including notable library-lead and multi-institutional programs. The potential for OER and affordable course material creation and adoption programs to impact student retention and persistence is examined. Potential additional partnerships and future directions for library-lead programs are discussed as well as the framework necessary for assessing the impact of library-lead OER initiatives.

© 2016 The Author. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Media coverage of the beginning of each academic year can be somewhat familiar to even the casual observer of higher education and certainly to those who work in academe. In the late summer of each year, news stories and infographics often depict the frame of reference for incoming first-year students, predict fall collegiate sports performance, and analyze the rising cost of higher education. The cost of higher education has garnered much attention over the recent past, with each student-incurred cost undergoing thorough analysis. Notable among those cost factors is the rising price of course materials, in particular, the traditional textbook.

A 2015 analysis of Bureau of Labor Consumer Price Index (CPI) data found that textbook prices rose by 1041% from 1977 to 2015, over three times the rate of inflation (308%) over the same time period (Popken, 2015). An independent analysis of CPI data found that textbook price increases outpaced even the overall cost of college tuition during the same period. At an increase of 778% during this period, college tuition rose at more than double the rate of inflation, but did not approach the inflation of textbooks (Bureau of Labor Statistics, 2016).

As textbook prices are rising, average student expenditures on them is not. According to data gathered by the National Association of College Stores, average annual spending on required course materials has dropped from \$701 in AY 2007–08 to \$563 in AY 2014–15 (Hill, 2016). Although the textbook price and expenditure data vary, the overall trend is toward rising purchase prices and declining average

expenditures. Many factors contribute to this trend, including efforts by bookstores and universities to contain costs. Physical textbook rentals, electronic textbooks, and semester-length licensing of textbooks by bookstores likely contribute to the decline in student expenditures. Students also take advantage of the textbook market online to save money. According to data gathered by the Florida Virtual Campus (2012), 78% of students surveyed reported purchasing textbooks from sources other than the campus bookstore.

There is some concern, however, that the reduction in student expenditures represents students who have simply decided not to purchase the required course materials for a variety of reasons. This suspicion is verified anecdotally by many faculty and by data gathered by the Florida Virtual Campus (2012) in an often-cited survey of over 20,000 students. A majority of student respondents (64%) reported having not purchased a textbook because of the high cost and 23% reporting doing so frequently. The same survey found that 56% of students did not receive financial aid to cover their textbook costs (Florida Virtual Campus, 2012).

The cost of and access to course materials has emerged as a student success issue. In addition to the fact that financial aid does not cover the cost of textbooks for many students, the data also suggest that the cost to students is weighted toward first year students. According to National Association of College Stores data for fall 2014, first-year students spent on average 20% more than upper division students on textbooks (Hill, 2016). Even for those first year students who are able to cover their textbook costs with financial aid, due to the timing of financial aid releases, many do not start their courses with the materials on the

E-mail address: jsalem@psu.edu.

first day. This is a particular issue for first-generation students, who often do not have the support system to navigate the start of their first semester (Caufield, 2015).

The net result is that rising textbook and course material costs are most noticeable among low-income, first-generation, and first-year students, all of whom represent the most vulnerable from a student success perspective (Tinto, 2006). Initiatives to contain textbook and course material cost, ensure access, and facilitate pedagogical innovation through enhanced course materials are therefore student success initiatives. In many institutions, these strategic directions are supported through open educational resource (OER) and affordable course content initiatives. Libraries can and often do play significant leadership roles in their institutional OER programs. For those libraries seeking to support student success, OER programs represent a focused way of doing so and should be designed with student success as a primary goal.

DEFINING OPEN EDUCATIONAL RESOURCES

Definitions of OER vary, with many institutions creating a local framework that meets the objectives of their OER or affordable course content initiatives. UNESCO is commonly cited and defines OER as:

any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation.

[(UNESCO, 2016)]

The Scholarly Publishing and Academic Resources Coalition (SPARC) is also commonly cited with the concept of open permissions explained “in terms of the “5R’s”: users are free to Retain, Reuse, Revise, Remix and Redistribute these educational materials” (SPARC, 2016).

The common understanding of OER is the open nature of the resources. Although many advocates for open education do not waiver from this requirement, localized definitions often include expanded access to licensed or purchased content as part of the strategy to reduce cost and increase access to course materials. Localized definitions or approaches can be seen as supporting affordable course content adoption and use with OER as one strategy to do so. The obvious benefit to OER adoption over increased access to licensed content is the long-term and universal access to the resources, particularly for those institutions for which OER creation or adaptation is supported as part of the local initiative. For many institution; however, reducing costs and ensuring access to required course content are the objectives for their OER or affordable course content programs, so all suitable resources are employed to those ends. As a result, even resources or programmatic initiatives that maintain, but reduce the fee to students for course material access are often considered to be components of OER and affordable course content initiatives.

CURRENT STATE OF OER

The overall use of and acceptance of OER among faculty is on the rise. Due to the availability of very high quality resources through national consortia, early concerns regarding the ability of OER to meet student learning needs and use expectations are less prevalent (Bell, 2015). The media coverage and increasing institutional focus on access and affordability overall and specifically with regard to textbooks and traditional materials have made alternatives more appealing to some faculty as well. Technological advances have made a difference as well as OER now includes interactive multimedia and modular learning, rather than simply online textbooks with open licensing (Shank, 2013).

High profile and high quality projects have had the biggest impact on OER adoption and creation. Perhaps the most common resource

type is the referatory. These include resources like the Multimedia Educational Resource for Learning and Online Teaching (MERLOT) of the California State University System and the OER Commons. Both systems maintain metadata for open resources that are housed elsewhere. Their inclusion in MERLOT and OER Commons make them more discoverable and enhance their potential impact. MERLOT is particularly noteworthy as contributed materials are reviewed for their suitability for inclusion. OER Commons uses a review system, but it is more of a quality indicator with many resources not reviewed (Shank, 2013). The benefit to the referatory model is version control. Since the resources are maintained locally, they can be fixed, updated, or expanded as the content demands without having to update several copies. This, of course, also makes them potentially less stable.

In addition to these referatory programs, which can include open resources of any type, open textbook programs in particular have seen an increase in quality, content, and adoption-enhancing features. Two programs in particular, Openstax at Rice University and the Open Textbook Library, a project of the University of Minnesota lead Open Textbook Network (OTN), offer the best examples of the progress that open textbooks have made. Both programs provide repositories of openly-licensed textbooks. Unlike the referatory programs, these repositories do host the resources that are made discoverable. Both are notable for the coverage of their texts, their easy integration into modern learning management systems, and quality assurance in the form of faculty peer reviews. They differ in the source of their content. Openstax texts are created through philanthropic support to authors for creation and sustainability (Openstax, 2016). The texts in the Open Textbook Library are author submitted. Like Openstax, they must be openly licensed, but they can originate outside of a grant cycle, therefore sustainability may be more of an issue. The Open Textbook Library also requires that the text be in use at multiple institutions of higher education or affiliated with a higher education institution (Open Textbook Library, 2016).

One result of the MOOC movement has been an increase in open courses and courseware available for adoption and adaptation. Perhaps the most prominent example is the OpenCourseWare program at the Massachusetts Institute of Technology (MIT); however, the OpenCourseWare program at Johns Hopkins University is noteworthy as well. Both offer full courses and open-licensed content in topics related to the public interest in their local expertise. For MIT, the goal is ambitious, with core materials from the majority of courses made available (Massachusetts Inst. of Technology, 2016). The Johns Hopkins University program is more selective, but just as openly licensed (Johns Hopkins U., 2016). The end result is an increase of readily available courses and materials for adaptation or adoption by local faculty.

In addition to these nationally-recognized programs and institutional contributions, consortial programs in support of OER and affordable alternatives are emerging as well. The OTN is one example in which multiple institutions contribute to the consortium with the goal of supporting the Open Textbook Library and the ongoing professional development and community of practice. The Unizin consortium in particular is a promising project that comprises over a dozen large institutions. Unizin is developing an instructional ecosystem using vendor-created and consortially-developed solutions. The vision is that member institutions will share course-related infrastructure with the goal of affecting the development of educational technology, and encouraging the cross-institutional sharing and development of open and affordable course content (Unizin, 2016).

Over the last decade, open and affordable course content initiatives and resources have developed at all levels to meet local, consortial, and international needs. It is anticipated that these programs will continue to evolve and enhance access and affordability of course materials and student success as a result.

EXAMPLES OF LIBRARY-LEAD OER/AFFORDABLE CONTENT PROGRAMS

At many institutions, the library has taken the lead on local or consortial OER and affordable course content programs. These range from national consortia, like the OTN, developed at the University of Minnesota to local programs to inform faculty of the benefits and availability of OER and more affordable course alternatives, faculty adoption and creation projects, managing the educational institutional repository, and more traditional services aligned with course affordability like course and electronic reserves services.

Faculty support and incentive programs are common and effective strategies for OER adoption and creation. The Open Education Initiative (OEI) at the University of Massachusetts at Amherst (UMass Amherst) is perhaps the most prominent faculty incentive program administered by the university library. The program began in 2011 and distributes faculty awards of \$1000 to incentivize faculty to adopt open textbooks. Approximately 1600 students enroll in OEI courses on average and the program saved students cumulatively over \$1000,000 in its first four years of existence. The University of California at Los Angeles (UCLA) library administers a similar faculty incentive program, the Affordable Textbooks Initiative. Like most of these programs, the stipend is small (\$1000); however, the difference for UCLA is that faculty are encouraged to adopt library-licensed, and low-cost options as well as OER (Bell, 2015).

Faculty incentive programs are increasingly viewed as OER and affordable course alternative adoption strategies. In addition to UMass Amherst and UCLA, notable examples of library-lead or partnered incentive programs include the Emory Open Education Initiative (Emory U., 2016), the Partnership for Affordable Content at the University of Minnesota (U. of Minn, 2016a, 2016b), and the Alt-Textbook Initiative at Ohio University (Ohio University, 2016).

In addition to faculty incentive programs, professional development programs related to OER and affordable course content are increasingly components of library liaison and outreach programs. User education and faculty development are well aligned with more traditional library roles. As a result, professional development and programming initiatives focused on OER and affordable course content alternatives are increasingly lead by libraries. Virginia Tech University is a good example of library-lead programming and outreach. In addition to taking advantage of events like the annual Open Education Week, Virginia Tech offers faculty development programming related to OER and affordable content resources, pedagogical integration, and open licensing (VA Tech., 2016.). Virginia Tech is also noteworthy as one of the first to designate a librarian as lead on OER and affordable content initiatives, creating the position of Open Education, Copyright, and Scholarly Communications Librarian (Bell, 2015). Even libraries that do not yet offer robust OER professional development initiatives have taken advantage of special events like Open Education Week to offer programming. The libraries at the University of Missouri (U. of MO, 2016) and Penn State University (Penn State U., 2016) have taken advantage of Open Education Week to offer university-wide programming.

Libraries have lead or partnered to lead institutional repository initiatives over the last decade or so. Typically, these repositories have been designed to store and share output from faculty and student research. With increasing demands on researchers to make their data available, particularly for research supported through federal funds, institutional repositories increasingly make data as well as finished scholarly products like articles, posters, slide decks, and multimedia. For those institutions supporting local OER development, those resources are either being added to the institutional repository or more specialized repositories focused on teaching and learning are being developed, much like the cultural heritage repositories managed by many special collections units. Of the institutions that host local OER repositories, the library often serves as a leading partner.

These OER repositories host locally-produced resources, or copies of OER and affordable content created and made available elsewhere, but used in local courses. They serve as single interfaces into the OER and affordable alternatives in use at the institution. The UH OER Repository at the University of Hawaii is a good example of an educational repository that offers students a streamlined opportunity to discover the open and affordable resources in use in their courses. Faculty are able to store their own OER or appropriately licensed resources from other sites that are used in their courses. The OER team at the University of Hawaii that leads this initiative includes librarians as part of a university partnership (U. of Hawaii, 2016). In addition to OER-specific repositories, libraries partner or lead the management of repositories that include scholarship and educational materials. For example, Open Scholarship and Publishing Services at the University of Minnesota hosts conference proceedings and open journals, as well as open textbooks (U. of Minn, 2016a, 2016b).

Even traditional services like course reserves are being reexamined with the goal of increasing their reach and impact on student course material access. The University of Minnesota has established a strong affordable course content program, with University Libraries a leading partner. Among the programs at the University of Minnesota is a strategic partnership between University Libraries and the university bookstore to take a programmatic approach to course-level access to licensed content through a program entitled the Bookstore Partnership Project. Through this partnership, the bookstore provides the list of materials created for each course. The library created an automated process to compare the required materials with currently licensed digital content and the licenses available through their core materials vendors. As a result, 65 assigned texts were found to be in the digital collection and made available at the course level through the Electronic Reserves Service. Through an allocation of \$20,000 for fall semester 2015, just under another 200 titles were added, with potential savings to students using the licensed content of approximately \$331,000 (U. of Minn, 2015). The project represents a programmatic and pro-active approach to a library service that has traditionally helped meet the understood goal of reducing cost of materials and increasing access with a potentially tenfold return on investment. The University of Minnesota example is somewhat unique, as the bookstore is managed by the university and not a third-party partner; however, even third-parties are increasingly involved in OER and affordable content initiatives as institutions pursue them as part of overall access and affordability strategies.

ESTABLISHING AN OER/AFFORDABLE COURSE CONTENT PROGRAM

Libraries interested in establishing a new OER or affordable course content program, partnering on an existing one, or focusing one on student success will likely find an environmental scan useful. As Steven Bell has observed, open textbooks are not new, but they have reached a maturity that makes them more appealing to many faculty (Bell, 2015), independent of any large-scale initiative, incentive program, or university strategic direction. It is likely that individual faculty, or even program-level faculty cohorts are using open resources or engaged in strategies to reduce costs to their students. Leveraging those initiatives, but more importantly, the faculty champions behind them can prove vital to the success of the program. It can also help to avoid the sense among earlier adopters that the new initiative is seeking to fix a problem that does not exist. Finally, highlighting local examples can make the creation or adaptation of OER or the adoption of OER and affordable alternatives seem much more feasible in the local environment. It facilitates being able to answer questions pertaining to the local culture and institutional policies related to intellectual property and licensing, documenting the work involved in creating or adopting OER or affordable content for tenure and promotion, and the workflow for creating, storing, and making discovering OER.

In addition to identifying potential faculty champions and projects already underway, that environmental scan should be focused on

potential programmatic partners. OER and affordable course content initiatives are often administered through university libraries, academic computing or teaching and learning with technology units, faculty development units, or any combination of them. For those programs designed to enhance student success, the institutional research or assessment unit is a necessary partner as well. Due to the prominence of the access and affordability issue and the impact that course materials has directly on students, student government may already be active in this area and if not can be a good partner in promoting the services and programs that are developed. Finally, the university bookstore can be a good partner and should be consulted at the very least to ensure that all stakeholders are aware of the goals of the program. Although the overall goal of many is reduced student cost, services like print-on-demand for open textbooks offer campus bookstores the opportunity to support both the preference among some students to use tangible resources and the overall goal of the OER or affordable course content program. Bookstores can also manage resources like access codes for reduced cost online resources or courseware.

If these stakeholders are already active in supporting OER and affordable alternatives, partnering early in the process will allow the library to lead in areas where expertise is needed and missing. If no programmatic approach is underway, these partnerships offer the library an opportunity to lead overall on an initiative focused on student success.

Finally, libraries seeking to get involved in or establish OER or affordable content programs should consider starting with professional development. In-reach programs for librarians can be a good way to increase the awareness of open and affordable course resources so that they can be infused in the general outreach and instructional efforts of many liaison programs. These programs can also be expanded or modified to be more externally-focused on faculty partners. Taking advantage of national events like Open Access Week each October or Open Education Week each March is one way to pilot outreach related to open and affordable resources. For those libraries that have not yet established the internal expertise to host such an event, nationally recognized programs can be a good way to get started.

For example, the OTN is an established and effective way for interested libraries to get their open or affordable program started. For a fee, universities can join the network, and with that membership receive a locally-hosted development program in which faculty receive a small honorarium to review textbooks in the Open Textbook Library. Member institutions also designate an OTN representative who attends a summer workshop and receives additional training to enhance local professional development opportunities related to OER and affordable course content (Open Textbook Network, 2016).

FRAMEWORK FOR ASSESSING OER/AFFORDABLE COURSE CONTENT PROGRAMS

Like any assessment, OER and affordable course content program assessment must start with the stated objectives of the program. In many cases, the goals of these programs will be related to reducing student cost and ensuring access to course content. Typical measures of success for these programs will include OER/affordable course adoptions and student enrollment in those courses, which can be used to project savings and increased first-day access to course content. Stakeholder experience data can also be valuable for measuring program success or areas of improvement. Student satisfaction with the resources assigned or created, faculty support needs and satisfaction with the adoption process, and the perspectives of OER/affordable course content service providers both in the library and in partnering units can be valuable in assessing programmatic needs related to outreach and staff support.

If, as argued earlier, these programs are to be understood as contributing to student success, they must be assessed accordingly. In a multi-institutional study with a sample size over 16,000 students, Fischer, Hilton, Robinson, and Wiley (2015) found that students in courses

using OER performed as well or better than students enrolled in courses that used more traditional, fee-based resources. They also found that students who were enrolled in courses that used OER enrolled in a statistically significantly higher number of credits the following semester than those who were enrolled in courses that used traditional, fee-based resources.

These findings offer evidence that OER and affordable course material are related to two common measures of student success, course grades and persistence. As a result, they can be used as a starting point in designing the local assessment procedures that will measure the impact of a library-lead OER or affordable course content program on student success. When designing the assessment plan for the program, partnerships with institutional research or assessment offices to embed course content as a factor examined at the institutional level, when student success is a program goal.

CONCLUSION

The access to and affordability of higher education in the United States is an increasingly prominent and important issue. Among the factors currently receiving much attention is the cost of and access to required course material. As textbook and traditional course material prices have continued to steadily and dramatically climb, the lack of equitable access to them has become a barrier to student success, particularly among first-year and first-generation students.

Increasing the adoption of OER and more affordable options is one strategy that many institutions are implementing with libraries leading or partnering to lead. Data demonstrating the efficacy of these programs to reduce student expenditures and increase the access to required course materials are commonly cited at the local and national levels. In addition to meeting the goals of reducing cost and increasing access, thereby inherently impacting student success, some evidence suggests that OER are at least and often more effective in enhancing student performance than traditional counterparts and that they are related to increased student persistence.

Therefore, libraries interested in directly impacting student success can adopt OER or affordable course content strategies as a focused way to demonstrably do so. Many libraries are involved in these initiatives already with more anticipated. Any assessment of these programs can measure course content access, cost-benefit for direct student expenditure on these materials, and embed course material types into institutional assessment strategies that seek to assess student success programs. By cultivating institutional and consortial partnerships, libraries can lead within their local community on open and affordable education initiatives in ways that are aligned with traditional and emerging roles and services.

REFERENCES

- Bell, S. (2015). Start a textbook revolution, continued: Librarians lead the way with open educational resources. *Library Issues* 35(5), 1–4 (Retrieved June 6, 2016 from) <http://www.libraryissues.com/pub/PDF3505May2015.pdf>
- Bureau of Labor Statistics (2016). Consumer price index: CPI databases. (Retrieved June 6, 2016 from) <http://www.bls.gov/cpi/data.htm>
- Caufield, M. (2015). Asking what students spend on textbooks is the wrong question. (Retrieved June 6, 2016 from) <https://hapgood.us/2015/11/09/asking-what-students-spend-on-textbooks-is-the-wrong-question>
- Emory U (2016). About EOEL. (Retrieved June 6, 2016 from) <https://scholarblogs.emory.edu/eoei/about>
- Fischer, L., Hilton, J., Robinson, T. J., & Wiley, D. A. (2015). A multi-institutional study of the impact of open textbook adoption on the learning outcomes of post-secondary students. *Journal of Computing in Higher Education*, 27(3), 159–172.
- Florida Virtual Campus (2012). 2012 Florida student textbook survey. (Tallahassee, FL Retrieved June 6, 2016 from) http://www.openaccess textbooks.org/pdf/2012_Florida_Student_Textbook_Survey.pdf
- Hill, P. (2016). Students are spending less on textbooks, but that's not all good. (Retrieved June 6, 2016 from) <http://chronicle.com/article/Students-Are-Spending-Less-on/235340>
- Johns Hopkins U (2016). About JHSPH OpenCourseWare. (Retrieved June 6, 2016 from) <http://ocw.jhsph.edu/index.cfm/go/about>

- Massachusetts Inst. of Technology (2016). About OCW. (Retrieved June 6, 2016 from) <http://ocw.mit.edu/about>
- Ohio University (2016). Alt-textbook initiative. (Retrieved June 6, 2016 from) <https://www.library.ohiou.edu/services/for-faculty/scholarly-communication/alt-textbook-initiative>
- Open Textbook Library (2016). About our textbooks. (Retrieved June 6, 2016 from) <https://open.umn.edu/opentextbooks/Ourbooks.aspx>
- Open Textbook Network (2016). Impact and benefits. (Retrieved June 6, 2016) <http://research.cehd.umn.edu/otn/impact-and-benefits>
- Openstax (2016). About us. (Retrieved June 6, 2016 from) <https://openstax.org/about-us>
- Penn State U (2016). Open Educational Resources Summit 2016. (Retrieved June 6, 2016 from) <http://news.psu.edu/photo/396580/2016/03/09/agenda-open-educational-resources-summit-2016>
- Popken, B. (2015). College textbook prices have risen 1041 percent since 1977. (Retrieved June 6, 2016, from) <http://www.nbcnews.com/feature/freshman-year/college-textbook-prices-have-risen-812-percent-1978-n399926>
- Shank, J. D. (2013). *Interactive open educational resources: A guide to finding, choosing, and using what's out there to transform college teaching*. San Francisco, CA: Jossey-Boss.
- SPARC (2016). Open education. (Retrieved June 6, 2016 from) <http://sparcopen.org/openeducation>
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, 8(1), 1–19.
- U. of Hawaii (2016). About the UH OER repository. (Retrieved June 6, 2016 from) <http://oer.hawaii.edu/oer-repository/about-the-uh-oer-repository>
- U. of Minn (2015). *eLearning report: Information for FY17 compact submission*. (Minneapolis, MN).
- U. of Minn (2016a). Our published works. (Retrieved June 6, 2016 from) <https://www.lib.umn.edu/publishing/works>
- U. of Minn (2016b). Partnership for affordable content. (Retrieved June 6, 2016 from) <https://www.lib.umn.edu/elearning/partnership>
- U. of MO (2016). OER Week 2016. (Retrieved June 6, 2016 from) <http://libraryguides.missouri.edu/c.php?g=420086&p=3112185>
- UNESCO (2016). What are open educational resources (OERs)? (Retrieved June 6, 2016 from) <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers>
- Unizin (2016). About Unizin. (Retrieved June 6, 2016 from) <http://unizin.org/about>
- VA Tech (2016). Open education. (Retrieved June 6, 2016 from) <http://www.lib.vt.edu/oer>