Open Educational Resources
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Overview and Definition

Open Educational Resources (OER) comprise learning objects and tools that are freely accessible through an open license, either through the public domain or Creative Commons licensing. Since OER are not beholden to rigid publisher copyright, educators have agency over their use of these resources. More specifically, these open resources align with the 5Rs, which allow users to retain, reuse, revise, remix, and redistribute OER content (Wiley 2014).

Why Do You Need to Know?

The rising costs of textbooks in higher education can present a significant barrier for student engagement and success in their academic pursuits. According to a 2017 study conducted by the Babson Survey Research group, the average cost of an individual required textbook is $97. This fiscal burden is further magnified by textbook requirements for multiple courses. Moreover, required course materials are an additional expense beyond tuition. The high cost of required textbooks may affect students' decision to enroll in courses relevant to their field of study.

While students have access to a wealth of intellectual content through their university library's print and digital subscriptions, most libraries cannot purchase reserve copies of every textbook used at an institution. This limitation can be due to general financial constraints, the impracticality of acquiring new editions on an annual basis, and the inability

for patrons to access complementary digital exercises with a single-use key. Furthermore, libraries typically place a time limit on course reserves and allow only one student at a time to engage with content, preventing availability to students at critical times of need. In response to this bottleneck to educational exploration, librarians and faculty are strategizing the adoption of OER.

Current Applications in Libraries and Higher Education

In 2018 Congress funded, and then renewed for 2019, a $5 million grant program to support the use and creation of open textbooks at institutions of higher education (SPARC). The William & Flora Hewlett Foundation is another major source of funding for OER projects. Recently, there have been both large-scale (statewide) and small-scale (institutional) initiatives for OER adoption in higher education to assist students with rising textbook costs and allow faculty to have more agency over their course material.

Affordable Learning Georgia, a large-scale initiative led by the University System of Georgia, promotes awareness of OER on their affiliate campuses through librarian outreach, provides grants for faculty to integrate OER into their coursework, and hosts a digital repository for OER created by faculty through their grants. Another large-scale initiative is Open NYS, which supports integrating OER in both the State University of New York (SUNY) and City University of New York (CUNY) systems. The Open NYS website offers first-hand faculty perspectives on adopting OER, links to a variety of OER repository sites, and a learning space with courses ranging from "Understanding Open Educational Resources" to "Open Pedagogy Master Class."

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On a more localized level, university libraries throughout the country are creating and supporting grant projects to support OER integration at their institutions. For example, Michigan State University, the University of Massachusetts at Amherst, and the University of Southern California have piloted OER grants that fund either the creation of a new OER or fund the process of adopting/remixing existing OER. As part of these grant projects, faculty who receive funding are usually required to attend at least one library-led workshop covering topics like copyright, locating and evaluating available OER, and how to establish effective workflows for creating or remixing OER. Moreover, these workshops are spaces that help foster meaningful relationships between faculty and librarians. The support offered by academic librarians extends beyond these workshops through individual consultations coupled with the creation of OER LibGuides for asynchronous guidance.

While there currently is not a singular common method for integrating OER into institutional infrastructure, librarians and faculty can draw inspiration from these varied initiatives. University stakeholders can collaborate and strategize how to implement OER to align with their institutions' unique needs. A keen gateway for OER adoption is through high-enrollment and introductory courses, which can provide cost savings to a greater number of students than seminar courses. Additionally, a large percentage of OER available in repositories is at an introductory level. Thus, faculty have a greater chance of finding either a single suitable resource to retain and reuse, or they can handpick modules from different OER to revise and remix (and potentially redistribute). Faculty are able to have more precise control over their course structure when using OER: instead of aligning their courses to the layout of textbooks, faculty are able to use OER modules to create a single resource that better aligns with a course's learning outcomes and timeline. Furthermore, open licensing also encourages student engagement with course content in innovative ways through an open pedagogical framework.

Several studies suggest that courses using OER produce similar student learning outcomes to courses using commercial textbooks. For example, a 2016 article summarizing nine studies suggests "utilizing OER does not appear to decrease student learning" (Hilton 2016, 586). Another recent large-scale study of students in the University of Georgia system indicated that learning outcomes were positively impacted by OER use, as were retention and completion rates (Colvard, Watson, and Park 2018, 272-3). Furthermore, OER creates an equitable educational environment for students through their affordability. Since open materials are typically freely available (or can be printed at a low cost), students have immediate access to course materials. Thus, OER ensures that students who cannot afford to or opt not to buy expensive commercial materials are not at a disadvantage.

Open Textbooks

Although open educational resources can take the form of any teaching or learning material—from assignments and assessments to syllabi and test banks—many higher education institutions introduce OER through textbook affordability initiatives. One popular model for these initiatives involves hosting a faculty workshop to discuss affordability issues, exploring open textbook repositories, and asking faculty participants to review a textbook in their discipline. These initiatives often target faculty teaching high-enrollment general education or introductory courses. Offering a small incentive of around $200 helps offset faculty time spent on the review. The Open Textbook Network (OTN) notes that faculty engagement with open textbooks leads to higher rates of adoption than simply providing information to promote awareness about textbook affordability. The OTN's Open Textbook Library aggregates more than 500 openly licensed textbooks from open content sources such as OpenStax and BCcampus.

Other Open Content

In addition to textbooks, open educational resources may also be supplemental materials that aid in teaching and learning. Content may include activities, case studies, data sets, lesson plans, simulations, and even full courses. Popular resources for finding content in various formats and subject areas include OER Commons and MERLOT. The Massachusetts Institute of Technology is among the institutions offering open courses, as well as open case studies. There are several metafinders designed to search across open content repositories, including the Mason OER Metafinder (MOM) from George Mason University and OASIS from SUNY Geneseo. Metafinders help

to overcome the challenge of finding OER that are widely distributed across the web.

Open Content Creation

Librarians also play a significant supporting role for faculty in open content creation. Various tools exist for creating content. Textbooks can be written in Microsoft Word or Google Docs or using tools like Pressbooks or OERPUB. Guidance for creating textbooks can be found in sources like the Rebus Community's open textbook *Authoring Open Textbooks*. Course websites can be developed and hosted through free resources like WordPress, Weebly, or Wix. With free registration, OER Commons and MERLOT users can create and contribute their own OER for others to find, use, and build upon. Small-scale interactive OER can be created using free tools like H5P. The Rebus Community offers important information and support for licensing open content on their "Licensing" page. To ensure accessibility of open content created, the University of British Columbia offers an OER Accessibility Toolkit.

Open Pedagogy

David Wiley (2013), Chief Academic Officer of Lumen Learning, argues for a reexamination of how to use open materials in teaching and learning in light of the permissions granted through open licensing. Wiley contends that through the use of open materials, we can move away from "disposable assignments" in which students feel little investment in favor of assignments that ask students to engage more fully with content to make more meaningful contributions to academia and beyond. Students can annotate public websites or other content using Hypothes.is, or they might engage in a Wikipedia edit-a-thon. Examples of students creating or contributing to open textbooks, for instance, abound in the Rebus Community open textbook *A Guide to Making Open Textbooks with Students*. The Open Pedagogy Notebook provides an excellent overview of open pedagogy, as well as examples of how open practices can transform teaching and learning.

Potential Hurdles

According to the 2017 Babson survey, faculty encounter a major hurdle when trying to locate appropriate open course materials. The lack of a single repository for open materials, along with the need to review content for quality and relevance, means that searching for content can be complex and time-consuming. A lack of open materials may exist for some more specialized subject areas. One reason textbook affordability initiatives tend to target high-enrollment, introductory-level courses is that open content for these courses is more likely readily available. If more faculty create content and license it openly, resources for higher-level and more specialized courses may become more prevalent.

Additionally, faculty express concerns about how open educational resources and open education practices fit into the tenure and promotion process. Thoms, Burns, and Thoms (2018) note that despite an acknowledgment among administrators that open access provides benefits to researchers, institutions have largely not implemented practices that encourage engagement with open practices. Apprehensions about the quality of open content remain a point of contention.

At the Open Education Conference in 2018, a major focal point of presentations and discussion was OER sustainability. While open content may be free to access, OER are certainly not free to create. Development requires time, effort, and other resources. Concerns at the conference arose around the ability of initiatives using financial incentives to continue when funding ran out, as well as around how existing materials would be updated. Several presentations revolved around business models for sustaining OER across higher education. An emerging issue in open education involves these types of models; various commercial providers offer openly licensed content in conjunction with platforms, auxiliary materials, and other content for fees that are typically significantly lower than commercial textbooks. Abbey Elder offers "Commercial Platforms that Utilize Open Educational Resources," an open spreadsheet that provides information about and assessment of some of these products.

Conclusion

The proliferation of open educational resources in higher education is advantageous for both students and faculty. For students, OER integration provides a significant cost savings throughout their academic career, and can aid them in freely pursuing their educational interests without the financial burden

of commercial textbook costs. For faculty, the flexible nature of OER enables them to have more control over course content. Rather than scaffolding a course to fit with a commercial textbook structure, faculty have the opportunity to customize or create new OER that more acutely correspond with their courses. Moreover, librarians play a critical role in supporting faculty with OER adoption by raising awareness on campus through workshops and grant initiatives, assisting in the process of locating and evaluating appropriate existing resources, and aiding with the incorporation of these resources into curricula.

Tools Discussed

- *Authoring Open Textbooks*
- BCcampus
- Commercial Platforms that Utilize Open Educational Resources
- Creative Commons Licenses
- Guide to Making Open Textbooks with Students, A
- H5P
- Hypothes.is
- Mason OER Metafinder (MOM)
- MERLOT
- MIT Learning Edge Open Case Studies
- MITOpenCourseware
- OASIS
- OER Accessibility Toolkit
- OER Commons
- OERPUB
- Open Pedagogy Notebook
- OpenStax
- Open Textbook Library
- Pressbooks
- Rebus Community
- Rebus Community Licensing
- Weebly
- Wikipedia edit-a-thon
- Wix
- WordPress

References

Note: In an effort to demonstrate a commitment to open access, the authors would like to emphasize their conscious decision to include references that are licensed under Creative Commons.

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Further Readings

- Iowa State University librarian Abbey Elder's YouTube playlist about open education is an excellent introduction to issues in the field
- Michelle Reed from University of Texas Arlington provides a guide, "Texas Toolkit for OER Course Markings, for marking courses

that use OER to help students more easily identify those courses. While legislation requires course marking in Texas, institutions that are not required to mark OER courses may still be interested in Michelle's [guide.](#)

- Jesse Stommel's blog post "[Textbooks, OER, and the Need for Open Pedagogy,](#)" focuses on textbook publishing, digital content, and inclusive access.