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Creating Open Textbooks: A Unique Partnership Between Oregon State University Libraries and Press and Open Oregon State

Abstract

This article presents Oregon State University's experience launching an innovative Open Textbook initiative in spring 2014. The partners, Open Oregon State and the Oregon State University Libraries and Press, aimed to reduce the cost of course materials for students while ensuring the content created was peer-reviewed and employed multimedia capabilities. This initiative sought to showcase existing and emerging disciplinary strengths of the University thus creating unique course content that could be shared globally. This article briefly describes the U.S. landscape for open textbook creation and adoption. It demonstrates how this unique partnership has developed, covering barriers and benefits, and what the future could hold for new projects.

Key Words: *Open textbooks, University Press, Publishing Partnership*

Introduction

Open education "encompasses resources, tools, and practices that are free of legal, financial and technical barriers and can be fully used, shared and adapted in the digital environment" (Scholarly Publishing and Academic Resources Coalition). Open educational resources may include textbooks, DVDs/videos, software, journals, audio recordings, collections of digital objects, and other types of course materials. Typically such resources are licensed for free sharing or adaptation or in the public domain, for example, digitized holdings from libraries or museums. Open textbooks are an important component of the open education movement in large part because they offer an alternative to high cost textbooks and allow professors to customize the content. Most often the format for open textbooks is digital. The digital format supports the expanding growth of distance education or learning where students are not physically located on campus as well as hybrid or blended education for courses that are offered on campus and from a distance.

In the spring of 2014, Open Oregon State launched an innovative partnership with Oregon State University (OSU) Libraries and Press to create an Open Textbook initiative. Open Oregon State collaborates with OSU's world-class faculty and OSU Extension professionals to develop online educational resources. It is a part of the Division of University Outreach and Engagement and falls under the umbrella of Extended Campus. OSU's Extended Campus is regularly ranked among the top ten U.S. online education programs. Oregon State University Libraries and Press represent the second largest research library in the state of Oregon and the longest running university press. There are eight units within OSU Libraries and Press. Established in 1961, OSU Press has been reporting to the Library since 2007 as a distinct unit. It is one of 20 presses among more than 130 members of the Association of American University Presses that reports to the university library in some capacity.

The pilot partnership sought to address the impact that rising costs of textbooks has had on OSU students and students across the national landscape. On average U.S. college students can expect to spend \$1,200 per year on textbooks and supplies (College Board, 2013, p. 11). An updated survey conducted in 2014 by the United States Public Interest Research Group found that 65% of students choose not to buy a textbook because of the price (Senack, 2014). As a result, students are avoiding buying textbooks, even with the awareness that their grades and learning may be compromised. Information from OSU's on-campus food pantry, which supports students experiencing poverty and food insecurity, shows that visitation rates rise directly after the time when students must purchase textbook along with paying their living expenses (typically all due at the start of a term) (Cady, 2016).

While some Open Textbook publishers such as Rice University's OpenStax are attempting to address the issue by creating open texts in those high-enrollment, lower-division lecture hall courses, we proposed to do so by highlighting those subject areas where Oregon State University has a reputation –horticulture, animal sciences and geosciences – and where they may relate to publishing strengths of OSU Press. The Press' publishing niche is Oregon and the Pacific Northwest with a strong focus on natural resources and the landscape as well as environmental, cultural, social, literary, and historical aspects of the region.

The Landscape of U.S. Open Textbook Publishing

The movement to create and adopt Open Textbooks has gained considerable momentum in the United States, leading to federal and state legislative efforts to reduce the overall costs of higher education. Notable Open Textbook efforts have included:

- [Open SUNY Textbooks](http://textbooks.opensuny.org/)—a pilot initiative established by State University of New York (SUNY) libraries. Open SUNY engages faculty in the SUNY system to create and peer review textbooks that are then produced via the libraries' publishing services and infrastructure. (<http://textbooks.opensuny.org/>)
- [Florida's Orange Grove Texts Plus](http://florida.theorangegrove.org/og/home.do)--a three-year initiative that sought to create a sustainable model for Florida and other U.S. states to discover, produce, and disseminate open textbooks. This three-year initiative was funded by a federal grant from the Fund for the Improvement of Postsecondary Education (FIPSE). <http://florida.theorangegrove.org/og/home.do>
- [Rice University's Open Stax](https://openstaxcollege.org/) (Texas)—a program that develops free, peer-reviewed textbooks to improve students' Access to readable, accurate, and high-quality course material. <https://openstaxcollege.org/>
- [Kansas State University Libraries' Open/Alternative Textbook](https://www.lib.k-state.edu/open-textbook) initiative—this ongoing initiative encourages faculty through a generous stipend to adopt or develop open textbooks that reduce textbook costs while improving student learning. Funds from student government with some support from the Libraries covered costs for the first two years. <https://www.lib.k-state.edu/open-textbook>
- Additional projects are showcased by SPARC (the Scholarly Publishing and Academic Resources Coalition) at <http://sparcopen.org/our-work/list-of-oer-policies-projects/>.

Academic libraries have certainly been at the forefront of these initiatives, partnering with university presses, other departments and units at their home institutions. Most of these initiatives have been funded on grants, gifts or other one-time monies but increasingly institutions are identifying ways to make these efforts sustainable, for example, by advocating for targeted programming money allocated from state government for the purpose of making higher education more affordable. OSU has committed positions to the creation of open educational resources specifically within Open Oregon State. OSU Libraries will consider its options and priorities as new FTE is available though like many academic and research libraries, its digital publishing services is already dedicating support services related to creating and hosting open educational resources.

Several U.S. state governments have passed legislation supporting the adoption as well as the creation of open educational resources (Scholarly Publishing and Academic Resources Coalition, 2016). California passed two bills, SB 1052 and SB 1053, in 2012 to create a library of 50 open textbooks. In Washington, the State Board for Community and Technical Colleges launched the Open Course Library, aimed at providing high-quality and low cost course materials for the system's 81 highest-enrolled courses. The State of Georgia allocated funding for the University System in FY 2015 and 2016 to provide grant-supported opportunities for faculty, libraries, and institutions to adopt or create lower cost options through the transformation of textbooks and other learning materials. In 2015, the Oregon legislature passed the House Bill 2871, providing "legislative investment in the area of textbook affordability, with a specific focus on the development of Open Educational Resources (OERs)" (Higher Education Coordinating Council, 2015).

Within U.S. higher education, community colleges and technical institutes have undertaken the most initiatives to change the landscape for the creation and adoption of open textbooks and other educational resources. These efforts are supported at the state and federal level and have expanded to proposed legislation such as the America's College Promise Act that would make community college free for low-income students. President Barack Obama characterized the aim of this legislation, stating: "Every American, whether they're young or just young at heart, should be able to earn the skills and education necessary to compete and win in the 21st century economy" (White House, 2015).

Oregon State University Open Textbook Initiative

President Barack Obama's comments could easily describe the premise of arguments behind the establishment of land-grant universities in the United States in the 19th century. A land-grant university is a U.S. institution of higher education designated by a state to receive the benefits of the Morrill Acts of 1862 and 1890 (National Research Council, 1995, 1). A land grant university has a federal mandate to conduct instruction in agricultural and mechanical subject areas and conduct agricultural research; to deliver this practical knowledge to both farmers and the general public; and to extend access to education for all citizens regardless of social or economic status. Oregon State University is a land grant institution, having been established in 1868.

This land grant mission is at the foundation of the Oregon State University Open Textbook Initiative to reduce the costs of course materials for OSU students. The three major strategic goals for OSU have also influenced the direction of the partnership:

1. Provide a transformative educational experience for all learners;
2. Demonstrate leadership in research, scholarship and creativity while enhancing preeminence in the three signature areas of distinction: Advancing the Science of Sustainable Earth Ecosystems, Improving Human Health and Wellness and Promoting Economic Growth and Social Progress and
3. Strengthen impact and reach throughout Oregon and beyond (Oregon State University, 2014).

These goals provided a strong motivation for influencing the way in which the partnership chose to create and deliver course content. The strengths of the partnership and its specific aims also demonstrate what makes the partnership unique. The initiative combines the project management resources and services devoted to digital preservation within OSU Libraries, the book production (peer review, editing, design, marketing) expertise of OSU Press, and the technological development skills of the Open Oregon State unit.

The major aims of the initiative were to reduce students' cost for course materials, exploit multimedia capability, and create content that fit the University's signature areas of emphasis. As a result, our partnership issued a call for proposals in mid-June 2013. We sought proposals from OSU faculty to develop open textbooks for multiple, high-enrollment undergraduate courses that would make use of extensive, original multi-media content. Preference was given to proposals in natural resources, geosciences, forestry, marine biology, agricultural sciences, and environmental sciences, especially since these aligned closely with the Press' publishing strengths. The project also sought to make the books available in four interactive formats – HTML, PDF, iBooks and ePub, thereby increasing the chances of course adoption on campus and from outside OSU. While it remains true that students' preference for digital textbooks over print textbooks is just beginning to increase, providing a choice in formats will allow students to use the device of their choice (Shepperd 2008; deNoyelles 2015). There are approximately 20 formats for publishing ebooks as well as several types of available readers (Library of Congress 2011). These are in addition to laptops or tablets, often the preferred devices for college students (deNoyelles 2015). Not focusing on one format takes advantage of formats that are usable across several types of devices rather than being exclusive to a specific reader (i.e., AZW, the custom format for Kindle readers). Additionally, not all ebook formats support interactive features that were an important feature planned for OSU's textbooks.

As another condition, completed textbooks needed to be issued with Creative Commons (CC) licenses, CC-BY-NC recommended. This CC license allows others to build upon the content non-

commercially while providing appropriate attribution to the original work of the OSU faculty authors. Furthermore, a PDF version of the textbook would be deposited in ScholarsArchive@OSU, the University's institutional repository that is managed by the Libraries' Center for Digital Scholarship and Services.

While seeking proposals, the project team also began work on a prototype to gain insight into possible production, design, and format issues. We selected an existing work, *Living With Earthquakes in the Pacific Northwest* by Robert S. Yeats. This work was originally published by OSU Press in 1998 and has been used widely in college courses throughout the Northwest. However, the author and the Press agreed to publish the book with an open license. Working with the author, the Open Oregon State unit updated the manuscript to include feature video clips of earthquakes where still photos once resided. They animated graphs and illustrations and replaced line drawings with animated pictures depicting the movement of tectonic plates. This work and our planned textbooks feature interactive content because the planning group perceived that students would perform better and comprehend more if they were provided interesting and enjoyable features rather than just text. Some studies show there is no significant difference in course performance for those students reading a print textbook vs. reading a digital textbook (Taylor 2011; Shepperd 2008). However, other studies show that online textbooks and course materials with interactive content have the potential to enhance learning (Smith 2013), especially when they are carefully designed and well organized so as to engage and inspire students. It is clear that more research and assessment needs to be conducted in this area.

The group's collaboration in creating the prototype (<http://openoregonstate.pressbooks.pub/earthquakes/>) yielded multiple beneficial outcomes:

1. Experience creating interactive content from an existing text;
2. Knowledge about creating different formats of an electronic textbook (i.e., html, ePub);
3. Evidence for participating authors that the partnership could yield a valuable resource transcending a print format.
4. Improved understanding of workflow issues and experience developing and gaining workflow efficiencies;
5. Improved communication between OSU Press and Open Oregon State staff to identify and solidify roles;
6. Increased communication with the author to understand their needs and aspirations for the textbook product.

Since its launch, the Yeats' prototype has been updated several times. The process for creating the prototype textbook has worked and has emphasized the importance of flexible approaches and planning. *Living with Earthquakes* has been adopted by Geosciences 380, an upper level course at Oregon State University, and in 2016, a group of faculty at Portland Community College began creating companion materials on plate tectonics and volcanoes.

Successful open textbook publishing relies on faculty participation. Our project deployed or implied multiple incentives to engage faculty in participating. These incentives match incentives used by other U.S. open textbook programs. They also addressed some of the misconceptions that faculty authors have about the creation and use of open textbooks. Successful authors could expect to be compensated up to \$15,000 to produce their manuscript. On average our authors received \$5,000. Such monetary incentives simulate "buying" a professor's time for overload teaching or teaching outside her or his principal department. They recognize the substantial work involved in writing a textbook, especially when authoring a textbook may not be recognized as having as much impact for promotion and tenure purposes as other professorial activities. Some interested faculty questioned why authors would want to relinquish potential royalties. Offering upfront monetary incentives compensated for this loss somewhat. The option to offer print on demand versions also promised the production of some royalties, albeit likely in small amounts.

Each partner in the project provides unique strengths and thus they assumed specific responsibilities that capitalized on those strengths. Projects were not acquired via the normal

acquisition path of the Press, However, OSU Press' inclusion in the project ensured that the materials created would be of high quality--peer reviewed and vetted through a rigorous editing process. The Press coordinates the peer-reviewing and editing process and is able to take advantage of its existing network of reviewers and editors to identify areas of improvement for each manuscript. Often the author is already working with the highly skilled technicians within Open Oregon State while writing the manuscript to develop interactive elements that highlight, expand, or explain the textbook's narrative. After the manuscript and the interactive elements are completed, the manuscript is reviewed again. Open Oregon State facilitate the creation of the necessary e-book versions while OSU Press assumes responsibility for ensuring a textbook is available for print on demand through several POD vendors. Because of the Libraries experience managing digital collections and institutional repositories, it is well positioned to develop and implement strategies to facilitate adoption of the textbooks through placement in national and global open educational resource (OER) repositories. The Libraries are also responsible for hosting and preserving a version of record in the University's institutional repository, ScholarsArchive@OSU although the multiple versions of each book are also available via the Open Oregon and OSU Press websites. ScholarsArchive provides universal access to the resource so that anyone across the globe with a web browser and an Internet connection can freely read the textbook. The Libraries are also responsible for enhancing discoverability and thus adoption. The full text of the work as well as its metadata is searchable through Google, Google Scholar, other large search engines and library search tools. All three partners have communications and marketing personnel to promote the textbooks broadly. The marketing departments of the Press and Extended Campus have connections to the University's marketing division which regularly distributes press releases to hundreds of news organizations and outlets.

This new partnership also provided benefits for the various partners, not the least of these being greater understanding of each other's mission, operations, and personnel. For OSU Press, the partnership yielded the opportunity to become more engaged directly with campus programs that benefit students as opposed to being a stand alone publishing unit with looser connections to OSU's mission and strategic initiatives. Some of the implied incentives for authors included greater visibility for faculty authors and their work through adoption outside the University. For example, ScholarsArchive@OSU is regularly ranked by Webometrics among the top twenty single institution digital repositories in the United States. The Webometrics ranking is produced by the Cybermetrics Lab of the Spanish National Research Council located in Madrid and is based on indicators such as the number, visibility and impact of repository holdings. Faculty who participate in the program would also be perceived as open access proponents on campus, a factor that might draw some students toward enrollment in a course. We also emphasized the advantages of 1) developing textbook content as modules so to improve shareability with other courses; 2) using multimedia elements to enhance a student's experience with content and perhaps improve learning outcomes.

As result of the RFP (Request for Proposals), several different projects were chosen by the planning committee and outlined for possible books. We received nine proposals and four were selected for funding. The four successful proposals covered animal nutrition, biochemistry, biocomputing and ecological management. At present, collaboration between the authors and the Open Oregon State unit is ongoing as the faculty authors research and compose their text while developing interactive multimedia content with Open Oregon personnel.

Future Directions

Phase two of the open textbook initiative has already been launched. In this phase, OSU faculty have been solicited to submit "publication ready" manuscripts that could be used in OSU courses. These "pub-ready" book projects are projects in need of a publishing platform and distribution assistance and they will likely be published under a separate OSULP/Open Oregon State imprint; the OSU Press will serve as a consultant rather than the publisher. This change acknowledges that creating a textbook from scratch, while valuable, is also an enormous commitment of time and resources from all involved, particularly the author. It also makes it possible for the project to gather and distribute more content, especially content that faculty had already been using in their courses. With the Press in the role as consultant, the Libraries will assume responsibility for

coordinating peer reviewing and editing most likely by outsourcing these services. A third phase is forthcoming and this phase will focus on soliciting proposals from departments and programs not just individual faculty members and the proposal will be to adopt or to create open textbooks. The call for proposals will still emphasize replacing high cost textbooks used in high enrollment courses.

As stated earlier, in 2015, the Oregon legislature provided support for the development of OERs by investing \$700,000 in textbook affordability. A portion of these funds will be used to hire a resource specialist working within the state's Higher Education Coordinating Commission (HEEC). OER advocates across Oregon higher education institutions, like those behind the OSU Open Textbook Initiative, expect to be able to apply for grants for OER adoption or development that are sourced from the remaining funds as part of HEEC's OER Grant Program. Even before the passage of this legislation, representatives from across higher education were discussing ways to collaborate on open textbook projects to reduce duplication of effort by developing resources that could be used for various courses across multiple institutions.

Also on the horizon is Oregon State University's participation in Unizin. Unizin is a digital learning consortium that makes use of cloud-based services to support digital learning offerings of its 11 members, including the entire [State University System of Florida](#). A significant feature under development for Unizin members is a content relay system, basically a search engine, that would allow faculty from member institutions to more easily discover and enable access to learning objects and educational resources such as available open textbooks. This level of collaboration opens the possibility for leveraging resources across the Unizin members to enable coordinated or intentional adoption, reuse, and creation of open textbooks.

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