Open Educational Resources and their Implementation at Miami University

A white paper submitted on 9/8/2015 by the members of the 2014 –2015 Faculty Learning Community Exploring Open Educational Resources:

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Executive Summary

The cost of higher education is staggering. Statistics published by the U.S. Department of Education indicate that prices for undergraduate tuition, room, and board at public institutions rose 39% between 2002 and 2012.[1] One of the contributing factors to these rising prices is the high cost of college textbooks. Recent student surveys have shown that students are paying an average of over $1,200 a year for textbooks.[2] Furthermore, many students either don't buy required textbooks at all or base their decisions on what course to take based solely on textbook prices.[3] The open educational resources movement seeks to alleviate some of this financial burden by providing digital textbooks where the only associated cost is that of printing, should a student choose to do so.

Open educational resources (OER) are teaching, learning, and research resources released under a license that permits their use by others.[4] OER can include any type of pedagogical material, including lesson plans, syllabi, video lectures, textbooks, and more. OER are growing in importance as state and national governments seek ways of making college more affordable to students. The 2013 Affordable College Textbook Act is designed to help students manage higher education costs by providing grants to academic institutions in support of pilot programs that support the use of open textbooks.[5] In response to all of this, universities across the United States have started actively exploring and supporting open educational resources.

During the 2014-2015 academic year, two Miami University Librarians co-facilitated a faculty learning community (FLC) on OER. FLC members surveyed the work of twenty OER initiatives from across the country, most of which aim to increase the use of low-cost or open textbook alternatives to reduce financial burden on students. Of the twenty initiatives surveyed, the group identified seven that were the most well established, effective, and inspiring. FLC members also researched the benefits of OER and discovered that when implemented they improve student retention, improve student performance, and reduce student cost. Several established university OER initiatives have published statistics related to their programs, which clearly demonstrate their benefits:

<u>Mercy College Mathematics OER Initiative</u>[6] - college-wide adoption of *MyOpenMath*, an OER that replaced commercial textbooks in 27 sections of college algebra in fall 2012 resulted in:
- Pass rate (grade of C or higher) for course rose from 48% to 69% over one academic year.
- Students collectively saved an estimated $125,000 during the first year of the initiative.

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[1] U.S. Department of Education, National Center for Education Statistics. (2015). Tuition costs of colleges and universities. https://nces.ed.gov/fastfacts/display.asp?id=76

[2] The College Board. (2013). Trends in College Pricing 2013. College Board. http://trends.collegeboard.org/sites/default/files/college-pricing-2013-full-report.pdf

[3] Senack, E., & Student PIRGs. (2014, January). Fixing the Broken Textbook Market: How students respond to high textbook costs and demand alternatives. Center for Public Interest Research. http://www.studentpirgs.org/textbooks

[4] Open Education | SPARC. (2013). http://sparc.arl.org/issues/open-education

[5] S.1704 - 113th Congress (2013-2014): Affordable College Textbook Act. (n.d.) https://www.congress.gov/bill/113th-congress/senate-bill/1704

[6] Lumen Learning, LLC. (2014). Lumen Learning – Success Story: Mercy College. http://lumenlearning.com/story-mercy-college/

<u>University of North Georgia, U.S. History Curriculum</u>[7] – when an open textbook was adopted as part of the core curriculum in calendar year 2013:
- Retention (course completion) rose from 88% to 94%.
- Successful completion (grade of C or higher) rose from 56% to 84%.
- Students collectively saved more than $44,000 over two semesters.

In addition to the clear benefits to students, OER can provide an evidence-based strategy to meet Miami University's 2020 goals. The FLC identified several 2020 goals that could benefit from an OER culture at Miami University:

Unifying Goal: *Learning and discovery*
- ***Objective 1*** specifies that Miami will achieve a six-year graduation rate of 85% and a four-year graduation rate of 75%. OER is a viable strategy for increasing undergraduate student retention.
- ***Objective 4*** states that units should offer flexible pathways to and through the University, including interdisciplinary, e-learning, and multiple degree options, to help students achieve timely and cost-effective completion.
    - OER may help students complete degree programs in a timely and cost-effective way because they are low-cost (or free)
    - OER are online and therefore accessible from any location; and
    - OER can be re-mixed and adapted to support an infinite number of interdisciplinary studies.

    All of these circumstances foster a student environment that supports success.

Foundational Goal 1: *Transformational work environment*
OER may help with Objective 4 by minimizing tuition increases through a transparent, strategic financial and budgetary system that incentivizes new revenue streams, reallocates resources, and promotes team-oriented solutions to fiscal challenges. Investing in faculty time to evaluate, adapt, or develop high-quality OER encourages faculty within a department or school to work as a team in identifying the most appropriate and cost-effective course materials (especially for introductory courses with many sections).

Foundational Goal 2: *Inclusive culture and global engagement*
OER may contribute to Objective 1 by attracting and retaining a diverse community of students. Widespread adoption of OER can reduce direct costs to students, which is particularly important for students from economically disadvantaged backgrounds, including first-generation college students and underrepresented minority students.

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[7] Rogers, E. (2013, October 4). Open-source history textbook can save students money. https://www.ung.edu/news/articles/2013/10/open-source-history-textbook-can-save-students-money.php and University System of Georgia & The California State University (2015). Featured Textbook - History in the Making: A History of the People of the United States of America to 1877. http://www.affordablelearninggeorgia.org/find_textbooks/featured_book

Members of the FLC recommend creating a Miami University OER Committee charged with evaluating methods of incorporating OER into Miami University's curriculum. After an environmental scan of existing efforts, OER initiatives at Miami might be realized in several ways, although the FLC recommends an OER Committee develop and implement an initial strategy of awarding faculty with grants of $2,000 – $5,000 to create open/alternate textbooks modeled closely on the Kansas State Open/Alternative Textbook Initiative.[8]

Regardless of the strategy adopted by Miami University, the following imperative criteria must be taken into account in order to successfully implement OER: sustainability; accessibility; infrastructure and support; and copyright and licensing issues.

After an OER initiative is identified and implemented at Miami University, assessment of the initiative will be imperative for sustainability and future effectiveness. Assessment should include measuring users' experiences with OER (both students and professors) as well as the measurement of student outcomes in courses that utilized OER. Additionally, assessment of campus "OER culture" across the university will help to make future recommendations on the initiative as well as compile affordability data that could contribute to university return on investment calculations.

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[8] Kansas State University. (2015, February 27). The Open/Alternative Textbook Initiative | K-State Libraries. http://www.lib.k-state.edu/open-textbook

Introduction

The cost of higher education for students is staggering. "For the 2012–13 academic year, annual prices for undergraduate tuition, room, and board were estimated to be $15,022 at public institutions, $39,173 at private nonprofit institutions, and $23,158 at private for-profit institutions. Between 2002–03 and 2012–13, prices for undergraduate tuition, room, and board at public institutions rose 39 percent, and prices at private nonprofit institutions rose 27 percent, after adjustment for inflation" (U.S. Department of Education, National Center for Education Statistics, 2015). In 2013, 69% of students graduated with debt averaging $28,400 (Reed & Chochrane, 2014).

One of the contributing factors to these costs is the high (and inflationary) cost of textbooks. Textbook prices can be a major financial burden for students at an average of $1,207.00 annually (The College Board, 2013). More importantly, these high costs can also become a barrier to learning. A 2013 report, which surveyed more than 2,000 students at 156 college campuses in 33 states, discovered that 65% of students surveyed were not purchasing their required textbooks (Senack & Student PIRGs, 2014). 94% of those who didn't buy the books reported being concerned about how that would affect their grades. About 48% reported that the cost of textbooks had influenced their decisions about which classes to take.

Placing textbooks on reserve in university libraries is one remedy, but it is one that doesn't fully address students' needs, especially for very large or very popular courses. Additionally, university budgets are flat or declining and cannot support the rising costs of purchasing multiple copies of textbooks. The open textbook movement seeks to produce digital textbooks where the only cost to students is the cost of printing should they choose to do so.

What are OER?

Open Educational Resources (OER)[9] are "teaching, learning, and research resources released under a license that permits their use by others"("Open Education | SPARC," 2013). OER include lesson plans, syllabi, instructional manuals, video lectures, fully designed courses with materials, textbooks, study guides, lab activities, and course readings. *Open* educational resources are freely available to instructors, learners, and the general public, and they can be authored by a single person or be the result of concurrent or serial collaboration by a group of instructors. For example, a single instructor might simply create a video of a chemical reaction for a chemistry course, or a team of instructors might collaborate to create an open textbook for a course.

The major differences between traditional educational resources (like print textbooks) and OER are: 1) how they are accessed; 2) how much they cost, and 3) whether they can be modified. Traditional educational resources in print format can only be used by one student at a time; commercial textbooks purchased in electronic format are licensed for one user, and their access expires at the end of the semester or calendar year. Both print and electronic textbooks can be prohibitively expensive. Additionally, copyright law restricts them from being modified from their original format. Conversely, OER are electronic in format and may be used by unlimited numbers of students, are free and accessible to the public, and their licenses allow them to be modified and reshaped by educators to suit the needs of learners.

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[9] Because "OER" is the acronym for "Open Educational Resources," it is already considered plural without an "s" at the end. Throughout this document we refer to OER as plural, unless we are discussing "an OER."

OER are growing in importance as legislators and key figures in higher education in Ohio and across the country seek ways to make college more affordable while providing greater value to students. Many OER legislative initiatives are directed at textbooks. For example, in November, 2013, Senators Richard Durbin (D-IL) and Al Franken (D-MN) introduced the Affordable College Textbook Act designed to help students manage the cost of higher education while providing grants to academic institutions in support of pilot programs that expand the use of open textbooks that achieve savings for students (S.1704 - 113th Congress: Affordable College Textbook Act, n.d.). In California, legislation passed in 2012 provides for the creation of free, openly licensed digital textbooks for the fifty most popular lower-division college courses offered by California colleges (SB 1052 Senate Bill, n.d.) (SB 1053 Senate Bill, n.d.).

In response to this situation, several universities have begun actively exploring and supporting open educational resources, including State University of New York Libraries (Open SUNY Textbooks | Open SUNY Textbooks," n.d.), the University of Minnesota (Open Textbook Library, n.d.), and the University of Utah (Whitehurst, 2013). Because OER allow instructors to tailor content to their students' needs, some have hailed OER and open textbooks as an optimal way to increase student engagement while helping them to better understand the importance of lifelong learning and content creation

Students elsewhere are not the only ones affected by the rising costs of higher education. Miami's student newspaper, The Miami Student, has published over ten articles in the last two years regarding textbooks costs. The most recent article, published in September of 2013, shares the frustrations of our students over both the costs and lack of purchasing options for course textbooks (Editorial Board, 2013). Miami University students recognize the promise of utilizing OER in order to save students money. In spring 2015, Miami University's Associated Student Government passed a resolution for the implementation of an open educational resources culture at Miami University asking university faculty and administrators to support the adoption of OER for courses and support further exploration of OER culture for possible implementation at Miami University (Stewart, Graves, & Fowler, 2015).

Surveying Best Practices in OER Programs

In spring 2015, the *Faculty Learning Community (FLC) Exploring OER* at Miami University surveyed the work of twenty OER initiatives from across the country. These initiatives have a variety of goals and objectives, but they all aim to encourage the use of low-cost or open textbook alternatives to reduce financial burden on students. The goals of the initiatives range from facilitation of collection and storage of OER, to designing interactive platforms for the creation of OER, to statewide initiatives that work to encourage the use of open textbook alternatives. Other initiatives simply define OER and Creative Commons licensing for people working to create and use OER.

The FLC members determined that the most well established, effective, and inspiring initiatives are the following:

> **Kansas State University Open/Alternative Textbook Initiative**
> http://www.lib.k-state.edu/open-textbook
> Kansas State University encourages faculty to create open course material through awards of $2000-5000 that support the course material creation process. The awards are competitive, with selection favoring projects that are demonstrably engaging to students and sustainable beyond the initial course for which the material is developed. Faculty must be willing to allow the course

material they create to be open and used in other sections of the course taught at Kansas State University (Kansas State University, 2015).

Affordable Learning Georgia
http://www.affordablelearninggeorgia.org
The University System of Georgia has implemented a larger-scale, collaborative approach across the Georgia Universities in partnership with California State University. They have created a dedicated website that compiles OER materials of various formats to make identifying potential open material for a given topic easier and more systematic. The University of Georgia plan also places a high degree of emphasis on access to open textbooks, and their program includes a granting process called Textbook Transformation Grants ("Affordable Learning Georgia," 2015).

Open Textbook Library
http://open.umn.edu/opentextbooks/
Librarians at the University of Minnesota Libraries have compiled a curated collection of approximately 170 high-quality, open textbooks in a variety of subject areas. All the textbooks in the collection are complete and openly licensed, and many have been reviewed by subject experts. All the textbooks in the collection are free to use, adapt, and distribute ("Open Textbook Library," n.d.).

MERLOT II
http://www.merlot.org/merlot/index.htm
Established in 1997, MERLOT is one of the oldest OER repositories in existence and is a program of the California State University System. MERLOT II (the second iteration of the platform) is a curated collection of free and open online teaching, learning, and faculty development services contributed and used by an international education community. Many resources include peer reviews, user ratings and discussions, accessibility information, and additional educational materials like learning exercises or course ePortfolios. MERLOT membership is available both to individuals and to organizations. Individuals can create an online profile in MERLOT II to save OER of interest and may also use the MERLOT II platform to create and host their own OER. Organizations can become a MERLOT partner (requires an annual subscription) to obtain additional benefits (California State University, 2015).

OpenStax
http://cnx.org/contents
OpenStax (originally known as Connexions) was founded in 1999 at Rice University to provide authors and learners with an open space to share and adapt high quality educational materials such as courses, books, and reports. OpenStax currently hosts tens of thousands of learning objects organized into textbook-style books in a wide variety of disciplines. Textbooks are written by faculty members and are peer-reviewed. Materials are easily accessible online and can be downloaded to almost any device. The search platform is robust and includes facets to narrow search results (Rice University, 2015).

OER Commons
https://www.oercommons.org/

The OER Commons is a repository for the creation and curation of OER, created in 2007 by the Institute for the Study of Knowledge Management in Education (ISKME). The platform offers tools to create, share, and discover curated OER. The OER Commons indexes a collection of more than 50,000 high-quality OER that cover a wide variety of subject areas, learning levels, and resource formats. The OER Commons interface is user-friendly for both the creation and discovery of OER (ISKME, 2015).

Noba

http://nobaproject.com/

Noba is a discipline-specific, curated collection of psychology materials created by Ed and Carol Diener (prominent psychology faculty) and co-authored by notable psychology faculty from across the US. Content is organized into modules that can be used as created or that can be re-mixed and adapted in any way an instructor sees fit. Noba also allows for the creation of new OER on their platform. Many modules include additional materials such as instructor manuals, PowerPoint presentations, and test banks (Diener Education Fund, 2015).

Benefits and Evidence

OER improve student retention, improve student performance and engagement, and reduce student cost. They meet our goals as scholars and teachers, as members of the Miami University community, and as advocates of the Miami University 2020 Plan.

Learners benefit from OER because they are more affordable. Beyond the financial benefit, the affordability of OER have been linked to increased acquisition of course materials, improved academic performance, and greater retention rates Unsurprisingly, students with the fewest financial resources available benefit most from adoption of OER. These claims are detailed below:

Claim #1
OER are demonstrated effective in improving student performance while reducing cost-to-student.

The Mercy College Mathematics OER Initiative (Lumen Learning, LLC, 2014) demonstrated this in a college-wide adoption of MyOpenMath. When all 27 sections of college algebra replaced commercial textbooks with MyOpenMath in fall 2012:
- The **pass rate** (with a C or better) for the course **rose** from 48% in spring 2011 to 69% in fall 2012.
- **Students saved** $125,000 during the first year

When an open textbook was adopted as part of the core curriculum in U.S. History at the University of North Georgia in spring and summer 2013:
- **Retention (course completion) rose** from 88% to 94%
- **Successful completion (grades of A, B, or C) rose** from 56% to 84%.
- **Students saved** more than $44,000 over both semesters. (Rogers, 2013), (University System of Georgia & The California State University, 2015)

Claim #2:
OER directly benefit university students who are most in need

Access to academic resources is central to student success, however the majority of students (65%) **report not buying textbooks due to cost** (Senack & Student PIRGs, 2014). Access is especially problematic amongst students of lower socioeconomic status (SES). Completion of degree is predicted more strongly by satisfaction with costs for low-SES students than for higher-SES students (Cabrera, Burkum, La Nasa, & Bibo, 2012). The cost savings provided by OER can help these students most directly.

Claim #3:
OER WILL save money
Many OER initiatives show cost savings within one year. In the University of Georgia system, OER have saved students over *$1 million in fiscal year 2014.* The University of Georgia's Intro to Biology pilot project saved students $150,000 in one year – six times the cost of the project's incubator grant (University System of Georgia & California State University, 2015)

In addition to students, educators benefit from OER by being afforded access to a wider range of choices. OER that can be downloaded and remixed by educators to suit individual needs offer a greater range of educational possibility than the fixed content of costly, closed textbooks. At institutions that financially incentivize faculty who take time to produce OER replacements for expensive textbooks, educators are rewarded for their time, service to students, and service to the university.

OER as a strategy to meet 2020 goals

The 2020 Plan maps out specific goals and strategies related to enhancing student success through increased retention, flexibility, and cost-effectiveness. OER can provide an evidence-based strategy to meet these goals. Employing OER as a strategy to meet some of these challenges is particularly noteworthy because it brings a new tool to our campus. Supporting the use and/or development of high-quality OER benefits multiple constituencies within the Miami community, particularly students.

Unifying goal: Learning and Discovery
Promote a vibrant learning and discovery environment that produces extraordinary student and scholarly outcomes.

> ***Objective 1*** is to prepare students for success at Miami and beyond through a liberal and applied education emphasizing inquiry-based experiential learning that integrates many disciplines.
>
> > *Objective 1, Metric 1* specifies that ***Miami will achieve a six-year graduation rate of 85% and a four-year graduation rate of 75%.*** This metric challenges and motivates all units to increase responsibility for retention, including enacting strategies that will include all phases of the undergraduate career. Making OER available for entry-level through advanced courses can enhance student retention at all levels (see *Evidence*, above). In particular, increasing the number and quality of OER can provide academic units and the libraries with concrete strategies to contribute to retention efforts.

Objective 4 specifies that units should **offer flexible pathways to and through the University, including interdisciplinary, e-learning, and multiple degree options, to help students achieve timely and cost-effective completion**. Utilizing OER for Miami University courses supports objective 4 in multiple ways. OER can help students complete degree programs in a timely and cost-effective way because they are low-cost (or free); they are online and accessible from any location, and OER can be re-mixed and adapted to support an infinite number of interdisciplinary studies. These circumstances foster an environment in which students can succeed.

Foundational Goal 1: Transformational Work Environment
Ensure vitality and sustainability by building a forward-looking, efficient, and caring culture that stimulates, recognizes, and rewards creativity, entrepreneurial thinking, and exemplary performance.

OER can particularly help with Objective 4: **Minimize tuition increases through a transparent, strategic financial and budgetary system that incentivizes new revenue streams, reallocates resources, and promotes team-oriented solutions to fiscal challenges** by providing a new avenue to reduce cost for students. Investing in infrastructure and faculty time to evaluate, adapt or develop high-quality OER can reap rewards across instructors and courses. Unlike other strategies, OER achieves these cost-cutting goals while also improving student performance.

Foundational Goal 2: Inclusive Culture and Global Engagement
Promote a diverse culture of inclusion, integrity, and collaboration that deepens understanding and embraces intercultural and global experiences.

OER provide a new opportunity to address deterrents to student success, particularly among members of underrepresented groups, which is relevant to Objective 1*: **Attract and retain a diverse community of students, faculty, staff, and administrators**.* Widespread adoption of OER can reduce direct costs to students, whether in the form of traditional textbooks or e-learning materials. Reduced costs are particularly important for students from economically disadvantaged backgrounds, who tend to include first-generation college students and underrepresented minority students.

Implementing an OER Culture at Miami University

Members of the 2014-2015 "FLC Exploring OER" recommend the formation of a Miami University OER Committee charged with evaluating and recommending options to integrate OER into Miami University curriculum and have included a preliminary plan for its implementation (see next section).

An OER initiative at Miami University might be realized in different ways. Some OER programs encourage the integration of existing OER into university curriculums through a system of evaluation, adaptation, and assessment while others incentivize the integration by providing grant funding for faculty to create new OER to use in university curriculums.

For both scenarios, the following sub-sections describe additional imperative criteria for OER program adoption and production identified by the members of the FLC. A Miami University OER Committee will need to be mindful of the following: sustainability, accessibility, infrastructure, licensing, and program assessment.

Sustainability of an OER Initiative

One feature of the traditional textbook model is that revision and updating are ongoing processes, with the time between editions in some fields is as little as two to three years. Market forces may drive some of this, yet it is also true that in rapidly advancing fields frequent updating of content is essential if the text is to remain current with the field. In order to develop an OER model to supplement or replace textbooks, this reality must be taken into account. In short, sustainability of the effort must be built into the project's design. In that context, there are three aspects that need to be addressed:

> **Intellectual:** Faculty members are well versed in the processes of developing and updating courses; in so doing, however, they are usually dependent upon the complementary efforts of textbook authors and publishers described above. If, however, a faculty member replaces a textbook with OER, then the responsibility for maintaining currency falls on her or him, and s/he will have to receive the appropriate **support and professional recognition** for those efforts.

> **Technological**: How can we make certain, to the maximum extent possible, that resources created will remain accessible for the foreseeable future? There are at least two challenges in this area. First, any locally developed content must be built on a stable platform that will remain so for the foreseeable future. Secondly, materials assembled into a particular OER will need to be audited on an ongoing basis, in order to minimize the incidence of "dead links" and incompatible modifications made by third party content developers.

> **Financial**. An all-too-common fate of initiatives such as this is that institutions make significant commitments for startup phases, yet continuing support for ongoing maintenance is not forthcoming (or is diverted from other areas, resulting in no net gain for students or faculty). In this case, resources will be needed on a continuing basis to address both the intellectual and technological issues addressed above.

Accessibility of OER

The adoption or development of OER must ensure that they will be accessible to all enrolled students, regardless of location or abilities. The university is currently developing guidelines and policies for accessibility that will aid in the development of course materials, including websites and audio-visual resources. The selection or creation of OER for Miami University courses should take these guidelines into account.

Infrastructure and Support

Infrastructure and support is imperative from several stakeholders throughout Miami University. Some of these include:

> **Miami University Administration** must support faculty creating and/or using OER through recognition of this work as a contribution towards their professional development and as a method of supporting teaching and learning globally. To support the creation of OER by university faculty, grant funding and time must be made available to faculty.

> **Miami University Instructional Designers**: Because OER are online, they are ideal for use in online or hybrid courses. Miami University's instructional designers can support OER by helping

faculty to utilize OER in their courses through integration with the university's LMS platform, Canvas.

Miami University Libraries: Librarians are intimately familiar with evaluating teaching and learning resources on behalf of Miami University faculty and students. There are currently an overwhelming number of OER available online, of varying quality. Librarian expertise should be leveraged to identify and evaluate OER and OER platforms in order to provide faculty with a manageable subset of high-quality OER options.

Miami University Bookstore: Stakeholders must work in partnership with the university bookstore to ensure that student are getting the relevant materials for their courses at the lowest prices possible.

Copyright, Licensing, and Creative Commons

Faculty need to ensure that the OER they create: (1) are original work, (2) do not infringe or violate any rights of others, and (3) are not subject to any contractual or legal restriction which would prohibit the faculty member from assigning an open license to the work.

OER content created by Miami University faculty is protected under United States copyright law. The rights to use the OER (including selling the material) remain with the faculty member unless those rights are clarified or defined through the use of an open license. The most recognized and frequently used open licensing system is Creative Commons (CC). The licenses available from Creative Commons have a legal document behind each license type. These licenses are compatible with US copyright law because the creator of the OER content (e.g., faculty) selects a CC license to attach to the OER content. There are seven types of CC licenses, each of which give permission and define the ways in which others can use your work ("Creative Commons," 2015). OER are often licensed under the Attribution License (known as CC BY), which means that anyone is free to remix, redistribute, and commercially use the work, as long as the original author is attributed.

Program Assessment

Assessment of both individual OER and of the impact of OER on Miami University's ability to provide a rigorous and affordable education is vital to the creation of a sustainable and effective OER culture on campus. The following suggests ways of evaluating OER and their implementation based on current best practices.

Assessment of OER

It is recommended that an assessment plan be established prior to the adoption or development of an OER program. The plan should outline procedures for measuring both the users' experiences and student learning outcomes.

Measuring users' experiences with OER: Both students and professors should be given the opportunity to evaluate OER for ease of use, clarity, engagement, and rigor. Assuming students understand how to interact with online textbooks, student feedback could be gathered through questions added to standard class evaluation forms or through exit interviews conducted by a third party. Professors could write a brief report describing their experience teaching with OER. To be meaningful, feedback from students and professors would need to be compared to data

from other, earlier or concurrent, classes on the same topic that use traditional materials (such as textbooks) instead of OER.

Measuring student outcomes: Both quantitative and qualitative data could be used to determine if OER helped students achieve the course learning objectives more or less successfully than traditional materials (such as textbooks). Quantitative data could include drop, fail, and withdraw rates, course grades, and student performance on a comprehensive assignment (such as a final exam or project). Qualitative data could be gathered through specific questions added to the standard course evaluation form. To be meaningful, both data sets would need to be compared to data from other, earlier or concurrent, classes on the same topic that use traditional materials instead of OER.

Assessment of Campus "OER Culture"

Quality: To ensure that OER are complementing and enhancing the educational rigor of Miami University, an oversight panel could aggregate and review the data measuring student outcomes from across the university every term. The panel could make recommendations for the OER program based on this comprehensive picture of the performance of OER in comparison to traditional materials.

Affordability: Cost data needs to be collected to ensure that the introduction of OER is lowering the expense of education at Miami University. Every term, professors could report the price per student of both the OER they are using and the traditional materials that the OER are replacing. The university could aggregate the savings per student per class to determine the cost effectiveness of OER implementation across campus.

For example: The proposed initiative at MU will show cost savings *within a single year,* and the ROI will *increase over time*.
- Implementing a single OER in a high enrollment class (e.g., Intro to Psychology: PSY111, with a typical enrollment of 130 students) will cost approximately XXX, but will save students more than $XX,000 *in a single class*.
- Given it is a *one time cost* with a *sustainable target*, this savings will occur *every semester the OER is used*.

A Preliminary Plan for the Implementing OER Initiative

All Miami University faculty members would be eligible to apply for awards of $2,000 - $5,000 each to create their open/alternate textbook that would be used for classes and/or multiple sections of a class over the course of several years. The open textbook would be made available for other instructors who choose to adopt it.

General Proposal Requirements

Proposals will provide the required information and address the following questions:
- Course information (course name, number, enrollment, semester[s] offered)
- Information on current textbook (title, cost, estimate on how much students will save by using your open textbook)
- Open Textbook Plan – three-page maximum
  - How do you plan to go about replacing the textbook in this course? (e.g., do you plan to use

an existing open textbook or develop your own materials?). What platform will you use? What format(s) will be used (e.g., PDFs, e-book, video, etc.)?
- o How will the textbook engage students in the learning process?
- o How will relevant copyright issues be addressed? (e.g., is the use of copyrighted material allowable under fair use or through a Creative Commons license?)
- o How will students access (view/print) the assigned content? Will the textbook be accessible via a student's mobile device or smartphone? Will the text follow universally accessible design principles?
- o Will you require support from colleagues at the Libraries or other university resources (e.g., to identify or compile resources, consult on copyright or accessibility issues, contribute to information literacy sections of the textbook)?
- o What problems do you anticipate? (e.g., will students be challenged to access the resources, are there time constraints or technology barriers, etc.)
- o What are your anticipated outcomes? How will you know they were achieved?

Eligibility

Material not eligible for the fund include:
- Commercial e-text versions of an existing print textbook
- Textbook rentals
- Existing textbook alternatives already in use by faculty; the proposal must be a new project

Selection Criteria

Applications will be reviewed by a panel consisting of two teaching faculty, one student, one representative from the University Libraries, and a past initiative awardee (for subsequent years). Winning proposals will be based on responses to narrative questions above and criteria below:
- Quality and strength of application and how well it meets the requirements
- Potential savings to Miami students (based on course enrollment numbers and current text costs)
- Ability to be implemented in the award period
- Ability to produce a quality product and to actively engage students in the learning process
- Sustainability of the resource beyond the initial course
- Willingness or ability to license the resource for re-use or adaptation at Miami or beyond
- Accessibility and usability of the resource for all students

Assessment & Final Meeting

Award recipients are required to submit short evaluations reflecting on their experience implementing their open/alternative textbook and the outcomes after each semester. Evaluations will be due approximately a month after each semester. All award recipients should be willing to make their class available for a brief assessment of students' evaluations of the learning materials during the implementation semester. Finally, all grant recipients are also required to meet at the end of the academic year to compare experiences, share findings, and make recommendations concerning the program.

This plan is modeled closely on the Kansas State Open/Alternative Textbook Initiative, one of the most successful current single-university models. See http://www.lib.k-state.edu/open-textbook

Conclusion

In order to implement an OER culture at Miami University, the FLC encourages university administrators to assemble a Miami University OER committee charged with evaluating and applying methods of integrating OER into Miami's curriculum.

The FLC strongly believes that the use of OER at Miami University will benefit our students, faculty, and the university at large by providing costs savings to students, increasing academic performance and retention, and encouraging faculty to collaborate in creative and innovative ways. Miami University's use of OER may also offer a valuable model to other schools in the state of Ohio and could potentially contribute to future statewide mandates to reduce higher education costs to students.

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Appendix A: OER Programs investigated by *FLC Exploring OER*

Name of Initiative/Resource	Link
Affordable College Textbook Act	https://www.congress.gov/bill/113th-congress/senate-bill/1704
Affordable Course Materials Initiative	http://www.library.ucla.edu/support/support-instructors/affordable-course-materials-initiative
Affordable Learning Georgia	http://www.affordablelearninggeorgia.org/
Affordable Learning Initiative	http://www.csupomona.edu/~library/ali/about.shtml
Canvas Commons	http://guides.instructure.com/s/2204/m/38287/l/257492-what-is-canvas-commons (see also Miami's instance in Canvas)
College Open Textbooks	http://www.collegeopentextbooks.org/
Emory Open Education Initiative	http://guides.main.library.emory.edu/OERs/open-education-initiative
Maricopa Millions Project	https://maricopa.instructure.com/courses/811971
MERLOT II	http://www.merlot.org/merlot/index.htm
MIT Open Courseware	http://ocw.mit.edu/index.htm
Noba	http://nobaproject.com/
OER Commons	https://www.oercommons.org/
Open Michigan	http://open.umich.edu/education
OpenStax	http://openstaxcollege.org/books
Open SUNY Textbooks	http://opensuny.org/omp/index.php/SUNYOpenTextbooks
Open Syllabus Project	http://opensyllabusproject.org/
Open Textbook Library	http://open.umn.edu/opentextbooks/
Open/Alternative Textbook Initiative	https://www.lib.k-state.edu/open-textbook
Open Washington	http://www.openwa.org/
Smarthistory	http://smarthistory.khanacademy.org/

Appendix B: Types of OER

OER frequently mean "textbooks," but they are not necessarily textbooks. It is valuable to distinguish the different types of resources that can be utilized as OER. Eventually, a Miami University OER Committee may want to classify all OER and their respective level of support (from intellectual to financial)

1. **Knowledge content**
    a.   textbooks
    b.   books
    c.   journals
    d.   data
    e.   primary source materials

2. **Experimental materials**
    a.   slides (e.g. for microbiology)
    b.   artifacts, paintings, sculptures
    c.   geographical materials
    d.   simulations (from physics and chemistry to mechanical and electrical systems)
    e.   codes, apps, and programs
    f.   lab activities and notebooks
    g.   games

3. **Priority & unique content**
    a.   patents
    b.   photographs
    c.   videos
    d.   course syllabi
    e.   lesson plans
    f.   lectures
    g.   podcasts

4. **Tests, surveys, qualitative/quantitative instruments** (e.g. test of creativity)

Appendix C: Miami University Associated Student Government, Student Senate Resolution

SR021513

Resolution for the Implementation of an Open Educational Resources Culture at Miami University

Dan Stewart, *President of Student Senate*
Gunnar Graves, *3rd District Senator*
Kirsten Fowler, *Secretary for Academic Affairs*
(Authors)

Ifeolu Claytor, *Senator at Large*
Stephen Bowersox, *Off-Campus Senator*
Shalin Shah, *Off-Campus Senator*
Joe Parizek, *Off-Campus Senator*
Briana Vamosi, *Miami University Undergraduate Student*
(Sponsors)

Presented to Student Senate on April 7, 2015
Approved unanimously on April 7, 2015

Whereas: Textbook affordability is a growing concern, both on a national and local scale;

Whereas: Miami Students are experiencing difficulty when trying to purchase textbooks at a reasonable cost;

Whereas: Students, on average, spend $1,200 a year on textbooks (Allen, page 1);

Whereas: Over the past decade, textbook prices have increased by 82%, an increase of three times the rate of inflation (Senack, page 6);

Whereas: Miami provides the estimate of each student spending $1,250 a year on books and supplies ("Tuition and Fees");

Whereas: Five textbook companies control more than 80% of a $8.8 billion publishing market (Allen, page 1);

Whereas: There is an indirect relationship between the consumer and the producer in the current model, where students must purchase the textbook chosen by a professor, and not the one they deem has good value;

Whereas: Students often need textbooks as a requirement for class, rendering students as price-inelastic consumers;

Whereas: 65% of student consumers have opted out of buying a college textbook due to the high price. Of that group, 94% say they suffer academically ("Survey");

Whereas: 82% of students felt they would do SIGNIFICANTLY BETTER in a course if the textbook were available free online and buying a hard copy was optional ("Survey");

Whereas: To drive out competition from the used book market, textbook companies have been requiring the purchase of an "online code," which grants access to online quizzes and resources;

Whereas: These online codes are only valid for a single semester, thus rendering the books valueless at the conclusion of the semester;

Whereas: Online codes only come with the purchase of brand new textbooks, or can be purchased additionally at the cost of ~$80-$100;

Whereas: This past semester, the Miami University Bookstore and DuBois Bookstore were not repurchasing textbooks that require an online access code;

Whereas: In this environment, textbook purchasing is increasingly becoming a sunk cost due to the inability to sell back a textbook, sell textbooks to other students, and a higher initial investment to purchase a new textbook with an access code;

Whereas: A 2014 report by the U.S. Department of Education shows that Miami University is the most expensive four-year public college in the nation ("College Affordability");

Whereas: In order to maintain an economically diverse student body, Miami University must strive to lessen the financial hardship imposed upon its students;

Whereas: One solution that has been implemented at other universities worldwide is the use of low- or no-cost alternatives to traditional textbooks, called open educational resources (OER);

Whereas: Examples of other institutions who have implemented OER programs are the University of Maryland, University of Washington, Rice University, and Virginia State University (AdHoc);

Whereas: The United States Senate Bill S.1704 The Affordable College Textbook Act demonstrates a national desire for universities to use OER;

Therefore be it Resolved: The Miami University Student Senate takes the position that professors should primarily use low- or no-cost alternatives to traditional textbooks where possible, and refrain from using resources that require an online code purchase;

Further be it Resolved: Miami University professors be encouraged to participate in creating or adapting these open educational resources (OER), and to support the use and development of open educational resources specifically created or adapted for courses offered at Miami University;

Further be it Resolved: The Miami University Student Senate supports the efforts undergone by the FLC Exploring OER sponsored by the University Libraries and CTE (formerly CELTUA), and encourages further research and quick implementation of an OER culture at Miami University.

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Appendix D: Potential Barriers to OER Adoption

1. Faculty
   a. Uncertainty about how to locate OER.
   b. Concerns about the quality and efficacy of OER.
   c. Concern about lack of professional incentives and rewards for creating OER within the current promotion and tenure system.
   d. Lack of familiarity with OER copyright and licensing issues.
   e. Lack of support materials (learning objectives, tests, assessment, etc.) for OER that are sometimes bundled with traditional commercial textbooks.
   f. Concern about potential decrease in royalties for traditional textbook authors and editors.
2. Students
   a. First year students may lack experience with electronic texts and may be unaware of embedded tools (e.g. print, annotate, highlight).
3. University Bookstore
   a. Concerns about decreases in textbook revenue.

Appendix E: Additional Resources

1. OE Program and Advocacy Plan Template, created by the Library as Open Education Leader grant (libraryasleader.org):
   https://libraryasleader.files.wordpress.com/2014/11/loel_oeradvocacyplanbuilding.docx

2. How Do I Get Started with OER? OER resources and repositories, including several Canvas courses/workshops with information about OER:
   https://maricopa.instructure.com/courses/811971/pages/how-do-i-get-started-with-oer

3. Scholarly Publishing and Academic Resources Coalition (SPARC) has made OER one of their three key issues: http://www.sparc.arl.org/issues/open-education

4. PowerPoint presentation: Affordable Learning Georgia: Raising Awareness About How Textbooks Affect Student Success – Information for Stakeholders, 2014:
   (http://www.google.com/url?q=http%3A%2F%2Fwww.usg.edu%2Facademic_planning%2Fcommittee_docs%2Fdocuments%2FALG_Overview_VPAA_CBO_2014.pptx&sa=D&sntz=1&usg=AFQjCNEfB3K97Et5pUI4mFswcqPDCoHpMA).

5. UNESCO's guide to OER: http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources//

6. OER Guide from JISC (Joint Information Systems Committee, UK): https://jisc.ac.uk/guides/open-educational-resources

7. Among other services, Lumen Learning provides training and support for faculty members and academic leaders to help transition high-enrollment courses to open content:
   http://lumenlearning.com