Open Educational Resources and Institutional Repositories: Roles, Challenges, and Opportunities for Libraries

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The adoption of digital-born, Open Educational Resources (OER) has been proven to improve student retention and learning outcomes, and OER has the flexibly to support multiple modalities of instruction. Institutional Repositories are uniquely situated to act as a platform to support and distribute content that can be created collaboratively between faculty researchers as well as students. However, faculty are still largely hesitant to adopt OER sources for a variety of reasons, not least among them being a lack of exposure and understanding of the potential benefits for both faculty and students in keeping curriculum affordable, up-to-date, and nimble through media-rich, annotated platforms. This study seeks to provide a model for institutions to adopt in using their open-institutional repositories to support broader OER adoption and use across institutions. A mixed-method case study will present results from faculty-student surveys and institutional data to provide a framework for the best practices in raising awareness among faculty, in outlining the benefits for students, and in supporting programs via library services.

INTRODUCTION

The potential for Open Educational Resources (OER) has only recently begun to be investigated and fiercely debated. The trend towards OER adoption has paralleled attention in research in related areas such as Massive Open Online Courses (MOOCs), the use of social media in education, and associated concerns such as data, privacy, ethics, and equality (Karunanayaka, 2012; Moe, 2015; National Forum, 2015; Stewart, 2015; Weller, 2014; Wiley, Bliss, & McEwen, 2014). The increased attention paid to OER relates to their potential to address increasing demographic, economic, and geographic educational boundaries through the open availability of information and the potential for personalized learning design. While the growth of OER opens new opportunities for teaching and learning, the notion of low-cost or no-cost options that are outside of the major publishers, with subject-matter experts curating their own content, challenges long-established values and practices in higher education (Yuan, MacNeill & Kraan, 2008; Carey & Hanley, 2008; Glennie, Harley, Butcher, & van Wyk, 2012; Hatzipanagos & Gregson, 2014; Weller, 2014; Thomas, 2017; Ahammad, 2019). Traditionally, OER have been understood as any learning materials in the public domain, digital or analog; however, digital-born platforms have become more robust and flexible. New digital platforms, such as Fulcrum, Omeka, and Scalar now have the ability to fully annotate long-form resources to support classroom instruction in a dynamic and media-rich fashion. Additionally, these platforms can be housed on institutional repositories - like Digital Commons, D-Space, GreenStone, CURVE, HumBox, and Eprints - for easy access by any faculty or student, in any modality, on any device. OER initiative have also taken on many forms, including MIT OpenCourseWare, OLI, OPEN ER, OER Commons, and Open Learn, to name a few early examples (Yuan, MacNeill & Kraan, 2008). Earlier uses of OER textbooks were primarily to replace traditional publisher's products and were of varying degrees of reliability with regard to recency of information. However, the role of OER is rapidly expanding to include digital-born, interactive materials with embedded videos, websites, blogs, and more, along with more traditional instructional materials by field. For instance, OER is being used to promote global citizenship by utilizing Open Data to develop transversal skills (including digital and data literacies, alongside skills for critical thinking, research, teamwork, and global citizenship), enhancing students' abilities to understand and select information sources, to work with, curate, analyze and interpret data, and to conduct and evaluate research (Atenas, Havermann, & Preigo, 2015).

The urgency for adoption of OER and supported through Institutional Repositories (IR) moves beyond technological advances and new pedagogies. Many disciplines, especially those outside of STEM and business, are witnessing reduced budgets and even full programmatic eliminations due to the economic crisis precipitated by the pandemic. Digital collections, such as those in the humanities, are becoming more common but are still difficult to access and navigate without extensive technical training. A community of digital pioneers have already prepared the groundwork to overcome these early hurdles, including theories, methodologies, and practices, along with producing examples of how OER may be leveraged in areas such

as humanities and education. The charge now entails taking the methodologies and strategies and expanding them into other fields, such as STEM and business, in order to support the development of critical and creative thinking skills. The strategy in doing so should include data-driven and information-intensive interdisciplinary research, combined with easy to use and easy to access software and applications to collaborate both within and outside of academia (Lane, 2008; Borgman, 2010; Leng & Ali, 2016; Kavaloski & Fassinger, 2017; Köntges, Lesage, Robertson, Sellick, & Stylianopoulos, 2017; Nascimbeni, Burgos, Campbell, & Tabacco, 2018).

However, before building on early digital pioneers' efforts, a broader understanding and acceptance of OER across institutions needs to occur. Faculty and staff in all areas of the academy need to be provided with information on what OER is (and is not), and equipped with the skills to proceed in searching, identifying, deploying, and, finally, creating their own educational materials for their fields. Moving from acceptance to widespread OER creation across multiple areas will first require conducting an internal institutional audit of current use and perspective. In order to provide an investigative model for institutions to follow, this study of faculty and students sought to first understand perceptions of OER and Open Educational Practices (OEP), the current rate of adoption and creation of OER, and identifies the major obstacles Library Services and administration are likely to encounter at other institutions. Results from the study indicated a broad willingness to create original OER content from faculty in most areas and identified the resources necessary to assist those interested. The current perceptions and use of OER reflect areas noted above in that College of Arts and Humanities self-reported the highest scores in both areas, followed by the College of Education and Human Services, the College of Science, Technology and Health, and, lastly, the Plaster College of Business and Entrepreneurship. Recommendations for scaling OER efforts at other institutions would include identifying key stakeholders and developing a robust training program supported by Library Services and subject-matter experts; resources to provide faculty with the time and expertise to create their own OER; and leveraging institutional repositories in order to democratize access. Through such investigations of the ever-evolving relationship between OER and how infrastructures, such as institutional repositories and archives, may be leveraged to support an engaged community on college campuses, the challenges faced by students and faculty may be managed by providing greater democratic access to information (Clement, Hagenmaier, & Levine Knies, 2013; Cronin, 2017).

LITERATURE REVIEW

Institutional Repositories

Digital Institutional Repositories are fast becoming one of the most important platforms for collaborating, engaging with the community, and disseminating scholarly research and production. Traditional libraries with stacks are transforming to meet the contemporary needs of university learning communities. More and more, digital libraries provide the resources and services in digital format for users, while institutional repositories serve as an institutional intellectual productivity of the research scholars within an organization that are collected, organized, and accessed via computer network. Digital repositories like The National Documentation Centre (EKT) (http://www.ekt.gr/en) support research by way of e-infrastructures and providing broader access to digital collections. The specific service supports the digital humanities and other subject-matter from the sciences through the research lifecycle, where it is housed on the SaaS (Software as a Service) platform and made available to a wider number of researchers, cultural and educational institutions. (Bartzi et al., 2019). Other examples, such as HumBox at Coventry University, are online areas to house and share publications, as well as share and manage digital humanities resources. HumBox also serves as a hub for the community of educators engaging with each other and using and sharing each other's resources, making important connections through the system. (Brick & Corradini, 2012).

Studies have been carried out on what faculty are most likely to use institutional repositories and why they use it. The Oviatt Library at California State University Northridge (CSUN) has two difference digital repositories: Digital Collections houses archival and historical materials, while ScholarWorks is utilized to host scholarly output by faculty. A study for advancing the use of digital repository services at CSUN was

carried out, and Kutay (2014) relayed the results that sought to understand which faculty and what departments were creating resources, what resources were being used and created, what interest there was in making these available to a broader audience, and the attitudes of faculty in future collaborations with the library. Results from the study concluded a need for more outreach to faculty, adoption of data management services for a wider variety of media storage, and services to address the inherent psychological barriers in adoption. In order to address these needs, Kutay (2014) lays out several strategies, including improving outreach to encourage collaborations with faculty to create and use their resources, extending outreach for use of existing institutional repository services, and creating policies to promote consultation and use of resources.

Open Educational Resources (OER)

The first use of the term OER was at the 2000 UNESCO conference in the context of ensuring free access to educational resources worldwide. The idea behind "openness," as with the internet, is based on the belief that knowledge should be freely shared and disseminated to benefit society in general. In order to achieve open resources, free availability of the information and materials need to be combined with limited restrictions on use, including legal, cost, or technical. Another important aspect of the working definition for OER is that "resources" are not restricted to content, but also include three other areas (OECD, 2007): instructional or educational content, software and other tools that allow content to be searchable and sharable, and, implementation resources such as intellectual property licenses. In practice, the Open Source Initiative http://www.opensource.org/ is an earlier example and began February 1998. The initiative allowed anyone to copy, modify, and redistribute the open-source code without incurring costs or paying royalties. In order to facilitate the process, Open Source Licenses are used to the labelling of the licenses as "open source" and align with existing community norms. A similar approach was taken by Creative Commons http://creativecommons.org/ (launched December 2002) where copyright licenses were released for public use. The licenses are machine-readable and allow websites, film, music, courseware, scholarship, and more to be available to the public while creators may retain copyright if desired (Yuan, MacNeill & Kraan, 2008). For an extensive discussion of the early development of OER see Davis et al., (2016).

Studies reveal that across postsecondary institutions in the United States, only a small minority of faculty are actively adopting OER for their classes. One reason for the low-rate of adoption is that educators that embrace the use and creation of OER have specific qualities. Cronin (2017, p.23) investigated these using a constructivist approach in "Using OEP for teaching," which identified four dimensions that open resource and pedagogy educators shared: "balancing privacy and openness, developing digital literacies, valuing social learning, and challenging traditional teaching role expectations." While the specificity of the dimensions may seem to point to a narrow segment of the educational population, use of OER and OEP are constantly negotiated and is complex and personal. At the same time, libraries are uniquely equipped to assist in fostering these dimensions and play a critical role in the OER movement through facilitation of identifying high-quality materials along with licensed content that is purchased by an institution and freely available to faculty and students (Bell, 2015). Martin (2010) has also argued that libraries need to demonstrate and provide this "value-added" service for faculty, who can in turn adopt for their students, which in turn saves both time and money. Faculty often find searching for and identifying quality OER challenging and time prohibitive, leading to the need for more training for library staff to reduce this burden (Martin, 2010; Mitchell & Chu, 2014; Okamoto, 2013). Librarians, Mitchell and Chu (2014) point out, are in the ideal position to negotiate among the components involved in OER: faculty, OER creators, course materials, and students.

Successful implementation of such strategies have been provided by institutions like Utah State University and confirmed by others (Hegarty, 2015; Williamson & Butterfield, 2020). Such examples for small-scale adoption provide institutions with a streamlined model to identify courses that are best suited for OER adoption. A process is then outlined for faculty and a collaborative process established with library staff to adopt relevant OER, including detailed workflows to use as part of faculty outreach toolkits (Davis et al., 2016). Specifically, at Utah State University, library services worked with faculty to integrate OER into their courses through collaboration with the Center for Innovative Design & Instruction (CIDI) in 2013.

The CIDI promoted a series of professional development workshops for faculty that were teaching online, hybrid, and distance education courses. Librarians were recruited to present in sessions on how to embed library resources into courses and provided a copyright guide to the selection of appropriate resources. Discussions of course materials were also at the fore in the discussions and examples provided for the faculty to adopt.

Institutional Repositories and OER

Once faculty have been supported, and appropriate OER identified, providing the right platform for dissemination is paramount. Therefore, central to the technical innovations associated with OER is user experience across a range of devices and activities. It is important to provide flexible and easy-to-use platforms that can be adapted to open-access tools for use and reuse in content for the internet. To that end, institutions should focus on investing in infrastructure that can support and enhance content creation, along with the ability to access digital content (Yuan, MacNeill & Kraan, 2008; Gourley & Viterbo, 2010; Dhanarajan & Porter, 2013; Sweeney, Flanders, & Levesque, 2017; Wolfe, 2020). IT should work closely with library services in building infrastructure as considerations include merging various systems to link dissimilar networks. It is important to consider that institutional repositories are increasingly becoming critical to the storing of OER content. These local repositories provide users with a known infrastructure that allows for easy access and preservation (Kretzschmar & Gray Potter, 2010; Rolfe, 2016;Ferguson, 2017; Hare & Sullivan, 2020). A concern with institutional repositories is how widespread the content placed within them is to the worldwide community versus using traditional commercial platforms (Rolfe, 2016; Thompson & Muir, 2020). Yet, this concern is often overcome by institutional repositories allowing for versioning and better preservation to be possible, which are critical aspects of OER. One problem that some universities face with using the IR for OER is faculty being unaware of the deposit process for adding materials to their IR (Ferguson, 2017). With strong promotional efforts, this can be overcome on a university campus.

METHODOLOGY

The mixed-methods study included data from surveys collected from students and faculty. The sample was collected from Lindenwood University, a private, four-year, liberal arts institution in the suburban ring of St. Louis, Missouri. Participants included 56 faculty and 354 students from the Colleges of Education and Human Services; Arts and Humanities; Science, Health and Technology; and The Plaster College of Business and Entrepreneurship. The purpose of the project was to assess the perceptions of OER, their current use, and barriers to adoption for faculty and student populations in order to propose an institutional strategy to support widespread adoption. This project utilized a mixed-methods study design which included qualitative (open-ended comments) and thematic (quantitative) results from an online survey. The survey was administered in fall of 2021 and collected data on student demographics, modality of attendance, perceptions of the benefits or drawbacks of OER, and current use and challenges with textbook costs in general. A previous survey conducted in spring 2021 on textbooks costs helps show similar trends found in the survey conducted for this study. Faculty were surveyed as to whether they have or intend to use OER in their courses, as well as the reasons for not adoption, and support needed to do so. Students were asked to indicate via a 1-10 Likert scale the most important reasons textbooks should be no-cost and the challenges faced by being unable to afford them. Students and faculty were asked an open-ended question regarding the perception of OER. Students were contacted either through the University course management system or were emailed with links to online surveys. The survey was available for approximately two weeks at the end of the term, and all data was collected using Qualtrics to ensure privacy and anonymity of responses. These results were sorted based on demographics (such as self-identified first-generation graduate students, undergraduates, international students, etc.) and data were exported for the survey system. Descriptive statistics were calculated and used for comparisons between groups.

RESULTS

Faculty Survey

Faculty across all four colleges were surveyed and demographic data collected. Of the 56 respondents, 55 were full-time faculty, 1 was staff with teaching responsibilities, and no adjuncts participated; 55.26% identified as female, 37.5% male, 7.14% preferred not to say, and none identified as non-binary. With regard to teaching experience, 73.21% of faculty respondents claimed to have taught over 10 years.

Faculty were then surveyed as to their perceptions, use of, and/or willingness to create/adopt OER for their courses. In order to ascertain faculty perceptions of why OER should be used in their areas, faculty indicated expanded access to learning as the most important at 40.43%, enhancement of regular course content at 17.02%, and augmentation of class materials and continually improved resources were tied at 12.77%. A majority of faculty (67.86%) claimed to have used OER in their courses. For those faculty who had not used OER, the reasons cited include these

1. A lack of time to find appropriate resources.
2. A lack of availability in their subject areas.
3. No time to create OER themselves.

Despite these limitations, 43.75% of faculty claimed that they are "somewhat" or "extremely likely" to create OER if materials did not already exist in their area.

In order to support faculty in creating OER, the survey then inquired as to what would be needed. Faculty indicated the following factors as necessary, ranked from most essential to less essential:

1. Course releases
2. Time to adapt existing materials
3. Compensation
4. Administrative support and encouragement.

The final section included free responses as to additional considerations for the use of OER. Whereas most free responses indicated a concern over costs for students, there was one that indicated a concern over academic quality: "Where are the questions linked to quality?" Overall, faculty recognize the burden of cost traditional textbooks place on students.

Varying perceptions and use of OER are reflected in responses across different departments and colleges. Of respondents, 33.93% identified as belonging to the College of Arts and Humanities, 25% from the College of Education and Human Services, 21.43% from the College of Science, Technology and Health, and 19.64% from the Plaster College of Business and Entrepreneurship.

Of respondents from the College of Arts and Humanities, 68.42% claimed to have used OER in their classes. If OER materials did not exist, 50% claimed to be "somewhat" to "extremely likely" to create them themselves. Motivating factors for creating OER were the same as the aggregate responses. The free responses were quite positive and reflect the earlier responses. As one faculty member states, "I love the idea, and I'd love to adapt some of my existing materials into something that could replace my textbooks, but I just don't have the time to do it properly."

The Plaster College of Business and Entrepreneurship faculty were less likely to use OER, claiming 54.55% have used OER previously. Furthermore, if OER did not exist in their field, no faculty claimed to be "extremely likely" to create their own, and only 33.33% claimed they would be "somewhat likely." Motivating factors for creating OER were the same as the aggregate responses. The free responses indicated faculty concerns over quality of OER. As one faculty member responded, "Quality, quality. This survey is slanted. It assumes OER resources are perfect substitutes for peer-reviewed resources written by scholars." Interestingly, the quote came from the group that was currently using OER.

The College of Science, Technology and Health had a lower adoption rate, indicating 50% have used OER. If OER did not exist in their field, no faculty claimed to be "extremely likely" to create their own, but 45.45% claimed they would be "somewhat likely." Unlike the first two colleges noted, faculty here noted that either textbook selection was out of their control or OER did not exist. Motivating factors for creating OER were the same as the aggregate responses. No free responses were recorded for this population.

The College of Education and Human Services had the least respondents overall, but 92.86% claimed to have used OER in their courses. If OER materials did not exist, 41.66% claimed to be "somewhat" to "extremely likely" to create them themselves. Motivating factors for creating OER were the same as the aggregate responses. In the free responses, faculty indicated how much OER was already in use, but there was one concern noted. One faculty member responded, "I am cautious about using them in my courses because one textbook is required for multiple courses and the other for our NCTQ [National Council on Teacher Quality] score. OER would be in addition to required readings."

Overall, The College of Education and Human Services already uses the most OER, followed by the College of Arts and Humanities, then The Plaster College of Business and Entrepreneurship, and, lastly, The College of Science, Technology and Health. The likelihood faculty would create their own OER was highest in the Humanities, followed by Sciences, then Education, and, finally, Business. Faculty consistently agree that the most significant motivators for the creation of OER are as follows:

1. Course releases
2. Time to adapt existing materials
3. Compensation
4. Administrative support and encouragement.

However, motivation is not the only consideration noted. For instance, certain disciplines have more existing OER to adopt, such as with the Humanities and Education, while Sciences, the least. Additionally, the concern over peer-reviewed sources and academic quality was higher in some areas (Business) as opposed to others (Humanities). It is also important to note that the distribution of availability of resources is not consistent within each area. For example, existing OER in behavior analysis - an area of Human Services - include only three recognized texts; one of these texts was published within the last year and was due largely to the opportunity to produce and disseminate the work through an institutional repository (Howard, 2019).

In considering the likelihood and motivation for adoptions, the years of teaching experience (and subsequently age) of respondents is also revealing. Of those that indicated they had taught over 10 years, 63.41% claimed to have used OER. If OER materials did not exist, 48.57% claimed to be "somewhat" to "extremely likely" to create them themselves. At the same time, 88.89% of those with 5-9 years of teaching experience claimed to have used OER, and 37.5% claimed to be "somewhat" to "extremely likely" to create them themselves. Those with 4-5 years of experience indicated that only half (50%) used OER and had no interest in creating their own (0%). The 1-3 years of experience group had 66.67% using OER, while 50% were "somewhat likely" to create their own. Finally, there was only one respondent that had less than 1 year of experience and claimed to use OER, but had no interest in creating.

Looking only at those faculty that claimed to use OER, 68% have taught over 10 years, and 21% taught for 5-9 years. The group comes from across colleges, but 34.21% are from Humanities, 34.21% from Education, 15.79% from Business, and 15.79% from Sciences. Results indicated that 48.57% of the group claimed they were "somewhat" to "extremely likely" to make their own OER if it did not exist. Of those that were not using OER, 87.5% have taught over 10 years, 6.25% taught 5-9 years, and 6.25% taught 4-5years, with none below that range. The group crosses all colleges with 37.5% from the Sciences, 31.25% from Humanities, 25% from Business, and 6.25% from Education.

Student Survey

Students across all colleges were surveyed and demographic data collected from them. 354 students responded to the survey. Of those, 36.16% were 18-20 years of old, 29.1% 21-24 years of age, and 10.45% 25-34 years of age; 70,34% identified as female, 26.55% male, 1.69% non-binary, and 1.41% preferred not to say; 7% identified as Latinx, 75.73% white, and 12.27% Black or African American. 78.48% of respondents reported the reason for taking classes was to "Earn a Degree." Finally, 26.12% identified as a first-generation college student.

Students were surveyed on their experiences with required textbooks. Of the respondents, 74.37% reported that they purchased required textbooks for classes "always" or "most of the time." At the same time, nearly the same percentage (76.9%) of students claimed to have purchased textbooks and have not

used them. This trend was also prominent in the spring 2021 survey, where 9.7% of the students commented without being asked on the lack of use of required course materials. In order to determine the effect on academic standing and progression, students were asked if they experienced any adverse effects from a list of options due to the cost of a textbook, and their responses were ranked as follows:

1. "Fail a course because I could not afford the textbook"
2. "Withdraw from a course"
3. "Drop a course"

Data from the spring 2021 survey showed that 17% of students dropped a course due to the cost of the textbook.

With regards to the cost of textbooks, students were asked a series of questions. First, students were asked how much out-of-pocket expense was incurred each term. Of the respondents, 21.27% stated the spent $101-$200, 20.63% spent $0-100, 20% spent $201-$300, 15.24% spent $301-400, 8.89% spent $400-$500, and 6.35% spent more than $500. Costs incurred by students are below national averages of $450-$625 per semester (Education Data Initiative, 2022). In order to reduce the costs associated with textbooks, students ranked the following:

1. "Rent digital/printed textbooks" (23.59%)
2. "Buy books from a source other than the campus bookstore" (21.64%)
3. "Buy used copies from the campus bookstore" (15.77%)
4. "Avoid purchasing a textbook" (11.61%)

Students were surveyed on their perceptions of zero-textbook degrees/programs. When asked what this population knew about OER, responses were almost unanimously "nothing." Out of the respondents, only one student answered correctly because they copied and pasted an example from a website: "Types of open educational resources include full courses, course materials, modules, learning objects, open textbooks, openly licensed (often streamed) videos, tests, software, and other tools, materials, or techniques used to support access to knowledge." (https://library.buffalostate.edu/almiedit/oer)

Next, students were surveyed on how important having zero-textbook degrees are to them. Of the respondents, 42.68% stated "It would be nice, but doesn't matter much to me;" 28.98% that "It would help me finish my degree in less time;" and 28.34% said "It would make a big difference in whether I am able to complete a degree at all." Students were asked to rank what they believed to be the most important benefits of OER/zero-textbook classes/degrees. In order, students stated the following to be most important:

1. "Save me money"
2. "Allow more time on my studies as I wouldn't have to work as much to pay for school"
3. "Reduce my reliance on student loans to pay for textbooks"
4. "Comfortable knowing I'll actually use the course materials"
5. "Increased accessibility as no need to bring physical books to classes"
6. "Quick circulation and availability"
7. "Digital friendly for more types of devices"

Students understand that OER would be more cost effective, but nearly half did not indicate a sense of urgency in adopting. At the same time, students were asked if saving money from zero-textbook costs would impact their decision to pursue another degree. The responses are as follows: 37.26% indicated "maybe," 35.99% indicated "yes," and 26.75% indicated "no." The same ambivalence pervaded the free-response section at the end of the survey. One student stated, "It would be nice to see the promise of zero textbook program. It would lessen the debt that students are in financially. It does matter to me. I plan to attend Lindenwood in the Spring to finish up other certifications."

RECOMMENDATIONS

There still remains some confusion with both faculty and students over the definition of what OER includes, as 67.86% of faculty claimed to have used OER in their courses, which is quite high compared to institutional records. Ability to create OER differs by area. For instance, the Sciences indicated the greatest difficulty in being able to create their own materials or those being available, while the Humanities ranked

highest in availability. Training and certifications in OER, such as that launched for fall of 2021 through library services, will assist in a broader understanding of the resource, as well as legal and distribution considerations of materials.

In addition to training and certifications to increase awareness and implementation of OER, an institutional repository can be leveraged to further those ends. Since its implementation July 2021, DigitalCommons@lindenwood.edu averages approximately 1,400 downloads per week. To date, the repository includes over 6,782 items and is comprised of dissertations, theses, online journals, podcasts, digital humanities projects, exhibits, conference presentations, student and faculty scholarly works, university publications, archival materials, images, and various other media. Of the 6,782 items over 4,000 have been downloaded at least once from over 2,500 institutions spanning 183 countries. Of particular note is an OER textbook created collaboratively by a faculty member and graduate students. The book was uploaded mid-September 2021 and has been downloaded 225 times over a five-month period. The data provide a powerful example of how a relatively small collection of materials can be shared so widely. While not all materials in the repository would fall under the definition of OER, the data suggests housing OER materials in an institutional repository presents a useful tool for defining, distributing, and integrating resources on a much broader scale. The repository should be used as an instructional tool to highlight and communicate what constitutes an OER, how OER can be created and used, and the many ways OER enhances the academic experience.

CONCLUSION

OER and pedagogy offer many solutions for wicked problems facing academia today. The democratization of content, access of information for all and not only those on the privileged side of the digital divide, and ease of use, access and flexibility of including the most up-to-date information in every field are all made possible. At the same time, attention must be paid to the needs, perceptions, and experiences of faculty, staff, and students. Empirical studies and research, such as that presented here, should be included in discussions of operationalizing OER adoption at an institutional level. On the other hand, another body of scholarship argues that theoretical and critical consideration of "openness" should coincide with the new charge of open education (Ehlers, 2011; Bell, 2016; Edwards, 2015; Gourlay, 2015; Knox, 2013; Watters, 2014). Cox and Trotter (2016) brought these two considerations together in their study of institutional culture, noting that policies in and of themselves are unable to ensure faculty engagement with OER. Culture, as the adage goes, "eats strategy for breakfast." This study highlights the underlying need for educational institutions to include all constituents and collaboratively build support between academic staff, faculty, and OER creators. Postsecondary education needs to develop digital literacies supported by digital capabilities. The concerns of faculty over privacy, openness, and quality of resources must be navigated carefully and thoughtfully. Finally, the role of higher education to support open access of information and resources for all to improve society in general should be embraced to ensure the equal access to a networked society globally.

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