Programmatic Characteristics of Open Education Initiatives at U.S. Post-Secondary Institutions

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Abstract

Although a number of academic research papers showcase the benefits of Open Educational Resources (OER) on student success metrics, the literature still lacks a central collection of knowledge identifying programmatic characteristics between 4-year public, 4-year private, and 2-year community colleges that support these OER initiatives in the United States. To address this gap in the literature and provide evidential statistics that suggest common programmatic characteristics, this quantitative study collected 149 survey responses from program managers of OER-related initiatives at institutions of higher education in the United States. While some previous research on this topic has focused on regional adoption or other aspects of OER usage, this research offers a unique perspective and aggregated exploration on how these initiatives are started, funded, governed, and assessed. The results of this study build on existing evidence that OER programs tend to be overseen by committees, are more likely to offer incentive payments for faculty, and offer at least some form of program assessment.

Introduction

Open Educational Resources (OER) are "teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free and perpetual permission to engage in the 5R activities" (Creative Commons, n.d.). As a result of rising costs for traditional textbooks, the use of OER in higher education has been on the rise to increase fair and equitable access to student learning materials (Karpel & Schneider, 2018). In many cases, the adoption and integration of OER in the curriculum has been a direct result of institutional initiatives and associated programs supported by academic libraries, as determined by an institutional website analysis completed by

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Veronica McGowan (2020): "48% of all sample OER initiatives are sponsored by the institutional library; 21.6% are sponsored by the institutional Center for Teaching Excellence; 11% by a partnership of institutional subunits" (p.35). In addition, libraries may often be a source of advocacy and assistance due to librarians' experience with the publishing industry, expertise in information literacy, and role as information providers (George & Casey, 2020).

In 2018, the authors and another colleague, all from different private postsecondary institutions in the United States, presented at the 15th Annual Open Education Conference. Their presentation centered on the limited attention paid to the travails of the smaller, private institutions that lack the inclusion and support derived from state-level policies that overwhelmingly allocate resources to public institutions of higher education. The authors recognized that independent institutions with Open Education initiatives were trying to achieve the same outcomes as public institutions that have the backing of state funding and legislative influence. In the rapidly evolving higher education landscape, private institutions are competing in the same ways to attract students and increase enrollment and retention, and OER can be a contributing factor for many student decisions such as whether to register or drop a course (Griffiths et al., 2020; Clinton & Khan 2019). Based on their own anecdotal experiences and those of OER advocates and colleagues at similar private institutions, the authors surmised that lack of financial resources, state assistance, and mandate incentives could be a major hindrance to OER exploration and adoption.

The OpenEd Conference presentation centered on results from a small-scale, pilot survey of private institutions' implementation of OER programs across the United States. One of the primary discoveries was that approximately 50% of smaller privates do not have designated staff to work on OER: support is ad-hoc, not facilitated by a designated or recognized pilot or program (Gumb et al., 2018). These results led to the development of a second survey, administered in February and March 2020 to explore more broadly the programmatic characteristics at all types of postsecondary institutions invested in Open Education.

The 2020 survey was sent to project managers of OER-related initiatives at United States post-secondary institutions of higher education in order to ascertain common programmatic characteristics, including implementation, organization, selection, and assessment. Additionally, the survey had multiple questions devoted to programmatic sustainability. Due to the global COVID-19 pandemic, recognized throughout United States higher education in March 2020, a week after the survey's close, the authors have removed near and far future sustainability data from this analysis. Given the uncertain pandemic recovery future, pre-pandemic sustainability responses must be revisited in future research studies.

While several earlier OER surveys are available, they focus on regional OER initiative adoption or local institutional OER faculty adoption (de Oliviero Neto et al., 2017; Hodgkinson-Williams & Arinto, 2017; Shigeta et al., 2017; Risquez et. al, 2020; Zaid & Alabi, 2020). This research, therefore, uniquely focuses on how OER initiatives are initiated and operated across the United States in a wider, aggregated exploration, including funding, governance, and assessment.

Literature Review

Funding

Much of the existing literature that mentions funding focuses on what is happening at the federal-level, state-level, and/or philanthropic level. For federal funding, perhaps the largest investment in OERs is Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grants Program through the Department of Labor, which allocated nearly $2 billion in grant funding to educational institutions "completed in two years or less" in "education and career training programs," which leaves out many institutions without career training focus or with four-year degrees (Stacey, 2013, p. 77). This program also made monies available to states, which in turn administered the grants. Miller (2019) notes that numerous funding models have been tried but "most come from either state or philanthropic funding" and not the federal level (p. 19). For instance, 29 states have enacted legislation that either creates textbook affordability initiatives or directly provides investment funds to be used for faculty development to create OER ("OER State Policy Tracker," 2021). Most state funding in these instances are directed towards public university systems, however, a few exceptions exist. Connecticut's H.B. 7424 (Connecticut General Assembly, 2019), for example, specifies $75,000 in OER grants to be awarded to faculty at both public systems and independent institutions. However, private institutions often rely on either external or internal private funding. In particular, the Hewlett Foundation and the Gates Foundation have provided significant funding for OER development in K-12 and post-secondary institutions around the world (Hewlett Foundation, n.d., Gates Foundation, n.d.) For internal funding, Caro & Lesko (2014) cite factors such as the (or lack of) availability of funding for OER programs in addition to availability of institutional staffing support, and faculty attitudes toward OER can enable and/or inhibit the implementation of campus initiatives. While much of the previous discussion focused on government and private foundation funding, that may be changing. OER funding initiatives, through donor funding, have also begun to emerge, but still remain in early stages (Valentino, 2015).

Governance

OER initiatives have taken many different forms and sizes, as indicated by case studies in the literature. Two broad categories serve to differentiate these studies into examples of either non-library-led or library-led research. The non-library-led initiatives display significant diversity in both size and scope, ranging from large multi-institutional programs to single pilot department-level projects.

For example, illustrative of a huge non-library-led initiative, 'Achieving the Dream' (Griffiths et al., 2020) outlines one of the largest types of OER initiatives: the Z-degree program. A Z-degree program is defined "a two or four-year degree program that exclusively uses zero-textbook-cost (ZTC) materials such as open educational resources (OER) and open textbooks" (Anderson, Kelly, & Lynch, 2021, p. 133). 'Achieving the Dream' includes collaboration across 38 institutions, about 2,000 instructors, nearly 160,000 students, and 6,600 OER course sections, which has saved students millions of dollars—over $10.7 million in textbook costs (Achieving the Dream, n.d.). In addition to 'Achieving the Dream,' many other institutions are also pursuing the Z-degree (Tepe, 2015) or broadly expanding OER-supported courses (Winitzky-Stephens and Pickavance, 2017).

On a smaller scale at the local institutional level, various non-library-led departments have piloted or examined OER, including Chemistry (Shorb & Moore, 2010; Allen, et al, 2015); Aquaculture and Fisheries (Pounds & Bostock, 2019); Psychology (Clinton, 2019; Engler & Shedlosky-Shoemaker, 2019; Grissett & Huffman, 2019); and Business (Seeley, et al., 2018), just to name a few. Regardless of any reported success or failure, none of these projects appear to be formalized—beyond a course or two—and remain in a pilot phase.

While many disciplinary departments show interest in OER, the literature shows that libraries have often led institution-wide and inter-departmental initiatives that vary in size and scope, including negotiating and resolving organizational obstacles and complexities. For instance, Thompson and Muir (2020) outline how two Scottish university libraries are coordinating OER initiatives at their respective institutions, but have also noted barriers to adoption due to institutional culture and the role in which teaching assessments plays as part of the United Kingdom's Teaching Excellence Framework (TEF) that do not consider OER inclusion. The University of Wisconsin Milwaukee organized an institution-wide, university grant-funded OER program to recruit faculty to review and adopt OER resources, while also trying to connect OER directly to the library's mission (Woodward, 2017). Numerous other institutions have tried similar initiatives (George & Casey, 2020; Avila & Wray, 2018; Miller & Homol, 2016; Katz, 2020). These programs have shown some early success, but few have reported any results beyond the initial funding and pilot project phase.

Assessment

While much of the literature has focused on the implementation of, or barriers to, OER initiatives, some papers have addressed assessment of existing OER initiatives. This literature has primarily focused on qualitative feedback (i.e., OER stakeholders' "perception" or opinion) and quantitative feedback (i.e., data-driven metrics, such as retention rates and cost savings). These metrics also accord with the COUP Framework from the Open Education Group which prioritizes Cost, Outcomes, Usage, and Perceptions (COUP) (Open Education Group, n.d.).

Fischer, et al. (2015) examined data from a mixed population of college and community college students (n=16,272) split into treatment and control groups. Results found that students were more likely to succeed in classes that had Open Educational Resources than those that did not offer OER. This study offers valuable insight into OER and corroboration of impact across a broad student population and across multiple disciplines. Somewhat conversely, Clinton and Khan (2019) found no difference in learning efficacy by conducting a meta-analysis of 22 case studies of OER versus non-OER courses but did find a lower dropout rate in OER-supported courses.

A meta-study by Hilton (2016) analyzed the effect of OER on student learning outcomes in nine case studies. The review article examined aggregated data gathered from 45,149 students. Three studies offered evidence favoring OER adoption. Three others showed no significant difference (p. 586). Only one of the nine studies showed any evidence of lower learning outcomes. A second larger meta-analysis by Hilton gathered data from 121,168 students and faculty (Hilton, 2020). Overall, Hilton concluded that OER did not appear to decrease student learning. However, while these meta-studies focused only on students' cost savings and learning outcomes, they did not examine whether there were commonalities between the OER programs (staffing, funding, organization, etc.) that were showing positive, neutral, or negative data related to cost savings and learning outcomes.

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SRI International collected significant data for its "Achieving the Dream" OER degree initiative (Griffiths et al., 2020). Collected from 2016 to 2018, data sets included: number of faculty members, number of students, two instructor surveys, site visits to 10 institutions to collect qualitative data, additional student-level data from 11 "research partners", data from OER grantees, and data from five "cost partners." This data was analyzed for a variety of factors, but focused primarily on the efficacy of Open Educational Resources for community college populations.

Additional studies also focused on OER cost savings impact, using various data gathering methods (Nyamweya, 2018; Colvard et al., 2018) and a framework by MHEC to standardize the measurement of impact and return on investment as well as methods of communicating these out (Zabeck, 2022). For the most part, this literature does not clarify whether positive reported impacts are due to implementation of organized OER initiatives, which would better ensure continuance, or student learning assessment. Assessment is further complicated when assessors do not account for the differences between assessing an OER initiative and the OER itself that is being utilized. Problematic OER impact studies and conflated assessment foci cause issues in gathering accurate data (Wiley, 2021).

Methods

Procedure

This project surveyed project managers of OER-focused initiatives at United States post-secondary institutions of higher education in order to ascertain common programmatic characteristics, including implementation, organization, and assessment.

In order to assess these aspects of OER initiatives in U.S. post-secondary institutions, a 29-question survey was developed. This survey included questions related to an institution's demographic information, in order to eliminate duplicate responses, and specific information about institutional OER initiative organization, process, funding, and assessment. The survey was reviewed and exempted by the Institutional Review Boards (IRBs) of Valparaiso University, Roger Williams University, and University of the Pacific. This survey was hosted on Survey Monkey and was sent to several open education and adjacent email lists in February and March 2020, inviting group members to respond before March 15, 2020 (Appendix A). The survey instrument that was used is included in a supplementary file to this article. However, responses to questions 24-28 were not assessed within this paper due to the impact of COVID-19. The responses of questions 24-28 will be assessed in a future paper, along with similar responses to be collected after COVID-19 becomes endemic.

Design

The study focused on how and why OER initiatives are started, operated, and assessed. Through closed- and open-ended questions, participants were asked to address the following aspects of OER programmatic characteristics:

- Initiative genesis
- Campus units/departments support and involvement in decision-making
- Initiative funding

- Campus assessment metrics

Responses

A total of 197 responses were received from January 21 to March 15, 2020. Of those 197 responses, 48 responses were deemed invalid for various reasons. Twelve responses had incomplete institutional identification, which made it impossible to de-duplicate. The remaining 36 invalid responses appeared to be duplicate entries and were removed. As a result, 149 responses were analyzed, interpreted, and reported. In addition, as earlier noted, because of the effect of the COVID pandemic, sustainability questions were not considered, since early 2020 responses may prove invalid now and in the future.

Results and Discussion

A total of 149 valid responses were examined, for which study results are reported here. While 149 valid responses may not provide statistically significant findings, the data does offer qualitative patterns of thematic trends. As a consequence of the limited data set, the authors examined either frequency or cross-tabulation of responses but without statistical significance determination (i.e., p-value) due to the small data set.

Basic Demographics

A variety of institution types are reflected in the 149 valid responses. Within the 31 basic United States higher education Carnegie Classifications, respondents categorized their institutions across the academic spectrum: 81.2% of respondents (n=121) represented publicly funded institutions versus 18.8% of respondents (n=28) from independent or privately funded institutions.

Respondents were grouped with their Carnegie Basic Classification, with 56 responses (37.7%) for Associate-level institutions, 18 responses (12.2%) for Baccalaureate-level, 28 responses (18.9%) for Master's (M1-M3), 8 responses (5.5%) for Doctoral/Professional, and 38 responses (25.6%) for Doctoral/Research (R1-R3). Respondents were also asked to contribute information about FTE staffing related to their OER initiative(s). Responses ranged from zero to 1,300 employees , including fractional values with 53% (n=79) indicating less than 1 FTE dedicated to the institution's OER initiative, 31.5% (n=47) for 1 to 4 FTE and 11.4% (n=17) with 4 or more FTE. Five respondents were unsure or did not know.

The average age of these programs varied as well. Results demonstrated a range of 1-3 years (47%), with the next most common being 3-5 years (20.8%). No institution surveyed indicated a program older than 10 years. Eighteen institutions (12%) gave no response when asked about program age. There were no responses for the "more than 10 years" option.

Governance/Administration

When asked about the reasons for starting an OER initiative, respondents offered a variety of responses. Each respondent could list multiple reasons for the origins of their institution's OER program, including an "other" option (See Supplemental File for survey instrument); these open-ended responses were then organized and categorized. The rising cost of textbooks was by far the most common reason given, accounting for 68.9% of institutions' responses, with "retention concerns" the second most common reason given (34.9%). Of the 16.8% of "other" responses, there were a few notable and unique responses. For instance:

- "Desire to reduce equity gaps in student outcomes for disproportionately impacted populations"
- "Institutional initiative to grow the college, resulting in a more diverse socioeconomic student body"
- "Student Government President asked about work being done on campus around OER after attending a regional meeting where OER was discussed"

A survey question concerning how OER initiatives are administered revealed a variety of approaches. Respondents indicated a range of departments were involved in their initiatives. Libraries were the most frequently mentioned campus collaboration unit (n=128, 85.9%). This specific response might be partly influenced by the authors' academic unit affiliation and their choice of email lists for survey dissemination, but it does also accord with existing literature. However, despite a prevailing library influence, the majority of respondents (n=120, 70.5%) also indicated multiple campus units were involved in the administration of the OER initiative(s). To clarify if these units share governance of a single OER initiative or have parallel or complementary OER initiatives, respondents were also asked if governance is shared (or not shared) across the institution. After non-responses (n=15) and "do not know" answers (n=2) were excluded, 132 responses detailed how OER initiatives are governed.

Of these 132 valid responses, most responses (n=101) reported some sort of centralization: a single unit or single committee; a shared committee of multiple units; or an advisory committee to an administrative unit. The several "other" open-ended responses (n=10) included a report of no formal committee in existence, or supplied an answer that was difficult to discern.

## *Institutional Funding (pre-COVID-19)*

Information about institutional funding at the local level for OER initiatives was also requested. A slight majority of responses (n=81, 54%) indicated an ongoing source of funding, while another nine (6%) indicated that current funding was from one-time funding, such as a grant.

47 (31.55%) respondents replied that their respective institution(s) were not currently funding their OER initiatives, with five of those respondents specifying previous funding that had ended. Eight percent (n=12) of respondents did not respond to the question.

There was some variance between initial funding levels and current funding levels (Figure 1), but several institutions were unsure of their funding levels (17.4% for initial funding; 18.1% for current funding) as well as more responses for "$0 - $2,000" funding level in current funding (n=15) than in initial funding (n=0). $2,000 - $5,000 funding range did not yield any responses in either initial funding or current funding.

Figure 1

Initial funding vs. Current Funding
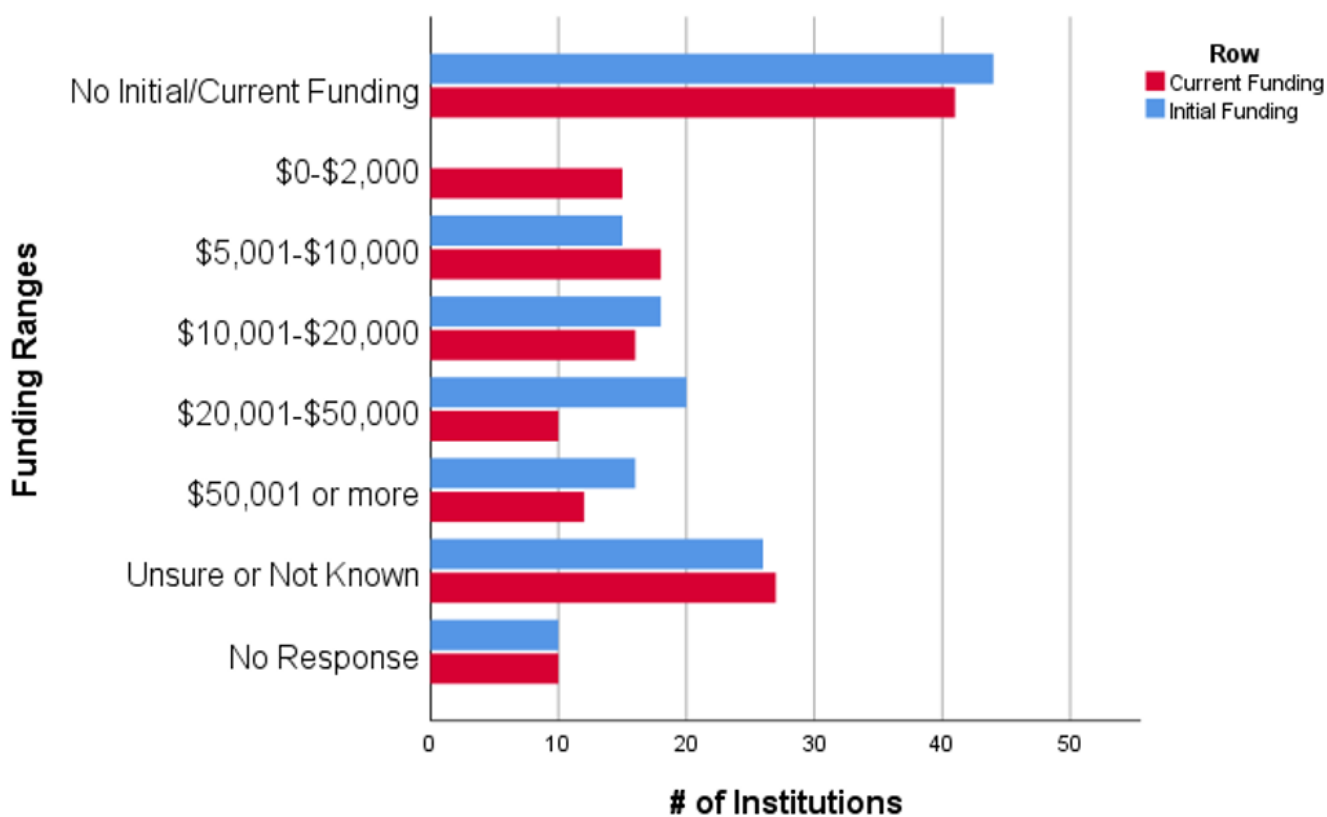
There were no responses for "$2,001-5,000" funding range

Of those initiatives that indicated some sort of current funding, funding purpose typically prioritized faculty participation incentives (i.e., stipends, awards, grants for review, adoption/adaption, creation, etc.), with 83 responses (43.7%), followed by memberships/affiliations in groups such as the Open Education Network and SPARC (n=29; 15.3%).

Programmatic Assessment

The survey also explored several aspects of programmatic OER assessment, revealing a wide range of institutional experiences. Student cost savings as a result of OER initiatives assumed special importance. Respondents reported textbook savings estimates ranging from $50,000 to over $1,000,000, but with no savings estimate range earning more than 5% of responses (Table 1).

Table 1

Estimated Total Textbook Savings by Current Institution Funding Levels

Current Funding Level	Estimated Total Textbook Savings Per Institution						Total
	$50,001 - $100,000[a]	$100,001 - $250,000	$250,001 - $500,000	$1,000,000 or more	No Response[b]	Unsure or Not Known	
$0-$2,000	2	2	3	1	5	2	15 (10%)
$5,001-$10,000	0	1	1	7	8	1	18 (12%)
$10,001-$20,000	2	2	3	1	3	5	16 (11%)
$20,001-$50,000	0	1	4	2	0	3	10 (7%)
$50,001 or more	0	0	1	6	3	2	12 (8%)
No Current Funding	5	1	4	4	19	8	41 (27%)
No Response	0	0	0	0	10	0	10 (7%)
Unsure or Not Known	0	2	3	7	8	7	27 (18%)
Total	9	9	19	28	56	28	149

a. No institution indicated an estimated savings amount below $50,000.
b. While many institutions did not respond to this question, there were 11 institutions that later indicated several cost savings per student formula in use.

As another example, length of OER initiative was examined against the number of courses that have implemented one or more OERs because of involvement in this initiative (Table 2). A plurality of institutions (n=41; 27.5%) reported that 26 or more courses implemented an OER, with the majority of those responses (n=33) from OER programs that have existed 1-5 years. The next most popular response was "Unknown/Not Sure" (n=28; 18.7%)

Table 2.

Examining Age of OER Initiatives and Course Implementation

| OER Initiative Age Range [b]	Q. How Many Courses Have Implemented an OER in part because of an OER initiative? [a]									
	0-2	3-5	6-10	11-15	16-25	26+	No Response	Other	Unsure/ Not Known	Total
Less than 12 months	8	5	0	1	0	0	0	0	3	17 (6%)
1-3 years	1	7	13	9	8	18	0	0	14	70 (24%)
3-5 years	0	1	2	3	5	15	0	0	5	31 (10%)
5-10 years	0	0	0	2	2	7	0	1	1	13 (4%)
No Response	0	0	0	1	0	1	10	1	5	18 (6%)
Total	9	13	15	16	15	41	10	2	28	149 (50%)

a. The question specifically asked for "course" as opposed to "course section" as "course sections" since many OER initiatives may only keep track of initial course implementation

When asked more specifically about assessment methods, responding institutions reporting assessment activities focused primarily on surveying. Typically, students (26.2%) and/or faculty (20.7%) were surveyed at the end of an OER course, according to responses, while 23.2% of respondents indicated no assessment was being conducted at this time. However, nearly 19% of institutions reported tracking the number of courses adopting OER as part of their ongoing assessment strategies.

Related to assessment, the authors asked about what marketing or promotional metric(s) might be used in order to justify the OER initiative to institutional stakeholders (Figure 2). This question, where respondents could select more than one option, received substantially more responses (n=277) when compared to the prior, more specific assessment question.

Figure 2

What metrics do you typically promote to justify the OER initiative?
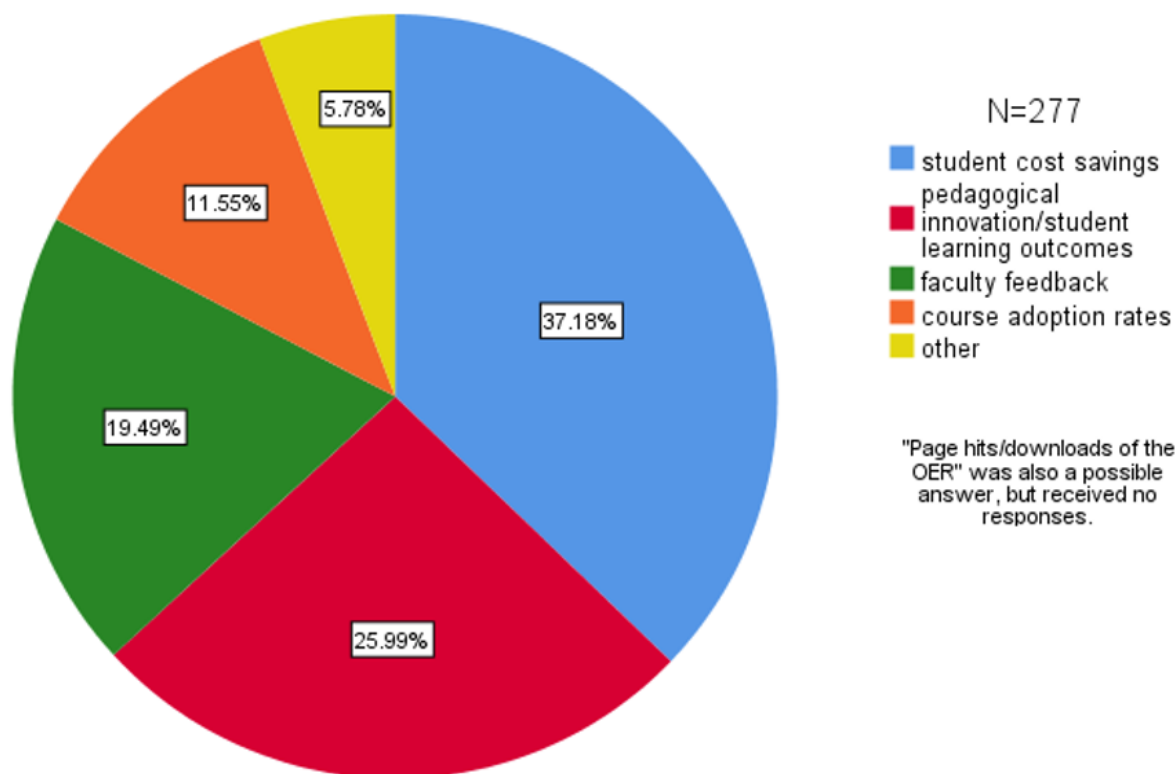
Nearly 63% of evaluative metrics focused on student impact, including student cost savings (37.2%) for course textbooks and pedagogical innovation related to student learning outcomes (26%). Page hits or OER downloads did not receive a single response for either an assessment strategy or promotional metric. This corresponds with the literature that Cost and Perceptions are the most trending elements from the COUP Framework (Open Education Group, n.d.).

Discussion

The primary goal of this paper was to explore how OER initiatives start, operate, and thrive. The authors gathered data on initiatives at all levels–public universities, community colleges, and private universities in order to identify common programmatic characteristics.

Programmatic Governance

The survey found that the majority of OER initiatives are campus collaborations involving multiple departments. While academic libraries are, in general, the most widely cited participant, survey results revealed noteworthy inclusion of additional campus units. Shared governance models (70.5% of respondents) suggest the efficacy of campus partnerships to ensure that OER programs flourish.

The survey found that the two most common reasons for commencing an OER program were rising costs of textbooks and associated student retention concerns. This holds true with what has been

published in previous literature (Griffiths et al., 2020; Senek & Donoghue, 2016; Wright & Reeves, 2019; Karpel & Schneider, 2018; Bidwell, 2014; Salem, 2017).

Programmatic Funding

Funding is, of course, a large concern for OER program operations. The results from this survey did show that the majority of respondents enjoyed some funding for an OER program (54%). These monies were typically invested in incentivizing faculty content production. Absent funding, based on anecdotal evidence from authorial observations, suggests an OER program will only survive if champions are willing to volunteer their time, knowledge, and effort.

A paucity of publications compares funding models and successful adoption of OER. For the most part, these papers compare non-academic organizations funded initiatives, such as Hewlett and Gates, against institution or public funding (Stacey, 2013; Stacey, 2010; Pena, 2009). The primary finding is that well-funded programs have a significant advantage in monetary and human resources that fosters success in planning for sustainability such as M.I.T.'s OpenCourseware or Rice University's OpenStax (previously Connexions), both originally funded by the Hewlett Foundation (Stacey, 2010).

At smaller universities, an ideal scenario might involve small, institutionally provided faculty incentive grants with sustainable long-term funding coming initially from the academic division (Provost department and affiliated monies) and later, from donor relations, e.g., donations from alumni supporting the student success implications of OER initiatives. At smaller public universities, depending on the state, institutions may be able to expect public funding for small faculty grants. Based on the survey conducted for this paper, however, 32% of respondents receive zero funding, which may fluctuate post-COVID as higher education funding monies continue to be volatile.

Those without funding must discover alternate strategies for OER creation, promotion, and adoption. Suggestions include increased OER use, adoption, and creation as standards for the faculty's academic portfolio in campus promotion and tenure decisions (Yano, 2017; DOERS3, n.d.). Faculty dossiers might include annual student awards acknowledging 'Best OER' (Dankowski, 2016). Staff assistance on converting a course would reduce time and thereby incentivize faculty.

Raising the profile of an OER program at an institution without funding is far more difficult, but it is not inconceivable, as survey results indicate. The authors would suggest that additional research is needed to clarify 'lessons learned' from successful initiatives without dedicated funding, as this might foster other OER start-ups with little or no budget.

Programmatic Assessment

Assessment informs both continuous improvement and sustainable funding. The latter includes regular communication about return-on-investment to senior leadership. Several survey questions investigated assessment methods in use by OER program administrators. While some respondents reported zero assessment, three primary methods are in common use:

1. Textbook cost savings for students
2. Student and faculty survey results related to the course's OER
3. Number of course OER conversions

In previous literature, similar assessment methods are described. Hilton (2020) and Watson et al. (2017) surveyed faculty/student experiences. The SRI International "Achieving the Dream" report (Griffiths et al., 2020) studied the "economic impacts for both students and institutions and the experiences of key stakeholders" (p. 6). The least time intensive methods of assessment are to determine money saved by course and number of courses converted. This survey's results strongly supported that assumption, as these methods were popular among respondents with 37.2% collecting data on student cost savings and 19% tracking the number of courses. A Likert scale survey of student use experiences is second in simplicity and can easily be bundled into the typical student end-of-quarter/semester course surveys. It was therefore surprising to learn that 23.2% of respondents revealed zero assessment at even this rudimentary level. This could be due to the initiative still not yielding enough data to assess, or could be due to a lack of institutional assessment culture, infrastructure, or policy.

OER page hits or downloads were listed in the survey instrument, but received no ticks by respondents. The authors found this somewhat odd, because this data is often available, through platform metrics, such as Google Analytics, or through data request to the web host. This could be a valuable metric for assessment and promotion; particularly if used, in conjunction with other scholarly metrics, in order to show impact with views/downloads at the institution, in the region, or globally. If the institution allows for OER to be considered in the promotion and tenure package, impact on this scale could take on additional benefits for the faculty member specifically. Additional research localized at Rutgers University (Todorinova & Wilkinson, 2020) as well as a national survey (Thoms et al., 2018, DOERS3, n.d.) has been done on the use of OER in the tenure and promotion process.

In other literature, additional assessment and promotional metrics involve study of student learning outcomes. In several studies, measures of student success relating to grades, passing, and retention are also of high importance. For example, Winitzky-Stephens and Pickavance (2017) found that while OER might increase the students' average grades, other factors such as demographic background and educational experience had a much higher impact on grades and retention than the type of text (whether free or fee-based) used.

As results suggest, assessment metrics deserve further study. Contrasting the efficacy of OER and non-OER course usage in different contexts such as cost savings, student outcomes, curricular innovation as well as different academic settings, from community colleges to Carnegie Classified R1 institutions, would serve to clarify OER contribution within a larger higher education context.

Conclusion

The investigators' primary purpose was to identify how OER programs are implemented, organized, and assessed across a range of institution types. While much of the data clarified programmatic beginnings and current operations, connections between organization, funding, assessment, and success were harder

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to parse out from a quantitative study with a small response rate. It was difficult to successfully identify those connections based on institutional type (2-year, 4-year public, and 4-year private) due to the fact that answers to questions varied so widely even among the subtypes.

The results of this study, however, do build on existing evidence that OER programs tend to be overseen by committees, are slightly more likely to have incentive payments for faculty, and offer at least some form of program assessment. These main three factors of governance, funding, and assessment are tied to the perceived sustainability of a program and provide a road map for those at the nascent stages of institutional OER programming. Future research to provide insight into the relationship between sustainability and operating strategies of an OER program is needed, especially considering a disrupted post-COVID-19 higher education environment. While sustainability of a program can be seen in successful implementation of the three factors, additional research, perhaps as a qualitative study or larger scale mixed methods survey that further examines aspects of governance, funding, and assessment, is necessary. Lastly, future research is also needed to assess the impact of COVID-19 and its related financial and sustainability consequences on Open Educational Resources, both for initiatives/programming and in general. The authors are planning on retooling and distributing a smaller scale version of the survey used in this research, focusing solely on how the pandemic changed sustainability factors such as funding and OER program managers' impression of near and far OER futures at their institutions. This secondary research article would compare the two data sets pre- and post-pandemic.

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Conflict of Interest Statement
The authors have no conflict of interest to declare.

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Appendix

Appendix A: Survey Email List
- Digital Commons Google Group (digitalcommons@googlegroups.com)
- OER Advocacy Coalition (oer-advocacy-coalition@googlegroups.com)
- EDUCAUSE (OPENNESS@listserv.educause.edu)
- IR Managers (irmanagers@googlegroups.com)
- Community College Consortium for Open Educational Resources (CCCOER) (ccoer-advisory@googlegroups.com)
- Scholarly Communication and Open Resources for Education (SCORE)/California Academic & Research Libraries (score@listserv.carl-acrl.org)
- Creative Commons Open Education Platform (cc-openedu@googlegroups.com)
- Open Textbook Network (open-textbook-network@googlegroups.com)
- American Library Association SCHOLCOMM list (scholcomm@lists.ala.org)
- SPARC OER Forum (liboer@sparcopen.org)