Can You Tell the Difference? A Comparative Syllabus Analysis of OER and Traditional Textbooks

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Abstract

A survey was conducted with faculty and teaching assistants asking them to compare two syllabi for quality and academic rigor based on their indicated discipline. One syllabus listed traditional textbooks and the other listed Open Educational Resources (OER) course materials. The syllabi were compared by participants prior to revealing that one contained OER, then the comparison was made again. Overall, participants found no significant differences between the syllabi using traditional materials and the syllabi using OER materials and only a small percentage of participants indicated knowing the material was OER changed their perception of the quality. These results would seem to indicate positive support for the continued use of OER. They also indicate OER use does not impact perceptions of rigor or quality of the course.

Keywords: Open Educational Resources, rigor, quality

¿Nota la diferencia? Un análisis comparativo del programa de estudios de REA y libros de texto tradicionales

Resumen

Se realizó una encuesta con profesores y asistentes de enseñanza pidiéndoles que compararan dos programas de estudios en cuanto a calidad y rigor académico según la disciplina indicada. Un programa de estudios enumeraba libros de texto tradicionales y el otro enumeraba materiales del curso de Recursos Educativos Abiertos (REA). Los participantes compararon los programas de estudios antes de revelar que uno contenía REA y luego se volvió a realizar la comparación. En general, los participantes no encontraron dife-

rencias significativas entre los programas de estudios que utilizan materiales tradicionales y los programas de estudios que utilizan materiales REA y solo un pequeño porcentaje de participantes indicó que saber que el material era REA cambió su percepción de la calidad. Estos resultados parecerían indicar un apoyo positivo para el uso continuo de REA. También indican que el uso de REA no afecta las percepciones de rigor o calidad del curso.

Palabras clave: Recursos Educativos Abiertos, rigor, calidad

你能分辨出差别吗？开放教育资源与传统课本的教学大纲比较分析

摘要

本文对全体教师和助教进行了一项调查，要求他们根据各自指定的学科对两个教学大纲的质量和学术严谨性进行比较。一份教学大纲列出了传统课本的课程材料，另一份列出了开放教育资源（OER）课程材料。参与者在“被告知其中一份大纲包含开放教育资源”之前和之后分别对教学大纲进行了比较。总体而言，参与者发现，使用传统材料的教学大纲与使用开放教育资源材料的教学大纲之间没有显著差异，只有一小部分参与者表示其在知道材料是开放教育资源后改变了对大纲质量的看法。这些结果似乎表明了对继续使用开放教育资源一事的积极支持。研究结果还表明，开放教育资源的使用不会影响对课程严谨性或质量的看法。

关键词：开放教育资源，严谨性，质量

The cost of higher education continues to rise, and the one area in which college and university faculty and staff can make a significant impact is the cost of course materials (Todorinova & Wilkinson, 2019; Walsh, 2020). As librarians, instructional designers, and faculty work to implement more affordable course material options such as the use of library eBooks in place of traditional publisher textbooks or the adoption of openly licensed materials, questions arise regarding the efficacy of these materials and how well they support students' academic needs (Jenkins et al., 2020).

Research on the effectiveness of implementing materials such as Open Educational Resources (OER), those

course materials licensed with a Creative Commons license that allows them to be reused, remixed, and redistributed, shows that they are overall a good solution to the textbook affordability problem. Studies show that students in courses using OER materials tended to perform better with a significant reduction in Ds, Fs, and Withdrawals, particularly for marginalized students (Covard et al., 2018; Nusbaum et al., 2020; Riley & Carmack, 2020). Students tend to have a positive perception of OER use, enjoying the digital dynamic content that is often mobile-friendly, in addition to the cost savings (Lin, 2019; Magro & Tabaei, 2020).

Some of the challenges cited with the implementation of OER include perceptions of OER being lesser in quality than traditional textbooks (Herbert et al., 2022); a lack of institutional support in the form of funding, training, or support staff (Henderson & Ostashewski, 2018); and time constraints (Elder et al., 2020). Given the perceptions of OER in terms of comparable quality to traditional textbooks, the long-term impact on students' academic careers has not been addressed. Is it possible that students in programs heavily reliant on OER use, such as those programs with Z-degrees, degrees promising zero costs for course materials, could be impacted down the road when applying for graduate programs? Studies of important criteria for graduate programs would seem to indicate that OER use would not impact acceptance, but little research has been done in this area (Authors, 2020).

Given the uncertainty of the long-term implications of widespread OER use on students' academic careers based on faculty's overall perception of OER quality compared to traditional textbooks, instructional designers at a medium-sized, public, comprehensive university in the Midwest conducted a survey of faculty using pairs of syllabi, one listing OER as course materials and one listing traditional textbooks, to determine if faculty would perceive a difference in the academic rigor or quality of course materials.

Theoretical Framework

Perceptions of OER

Seaman and Seaman (2022) conducted a national survey of faculty and administrators to determine post-pandemic patterns in course material usage. Their findings indicate 46% of faculty have an awareness of OER and Creative Common copyright which is an increase of 7% from pre-pandemic surveys. One of the barriers to OER adoption, according to Herbert et al. (2022) is a lack of understanding of Creative Common copyright and how faculty can protect their intellectual property when using OER. Faculty also perceive time to be a barrier to OER adoption and most would like financial incentives to revise courses to incorporate lower-cost course materials (Bond et al., 2021; Henderson & Ostashewski, 2018; Taylor & Taylor, 2018; Todorinova & Wilkinson, 2019). The need for training on the use of OER and Creative Copyright in addition to assistance to locating quality resources are

other often cited barriers to OER adoption (Bond et al., 2021; Henderson & Ostashewski, 2018; Taylor & Taylor, 2018; Todorinova & Wilkinson, 2019).

While awareness of OER materials continues to rise, lingering doubts remain about the quality of OER materials when compared to traditional textbooks in a small percentage of faculty (Bond et al., 2021; Galloway, 2020; Stoupenos, 2021). Most of the concerns about quality stem from a lack of a peer-review process (Galloway, 2020). Lantrip and Ray (2021) found that 79% of their respondents rated their choice of OER textbook as the same or better quality than previously utilized traditional textbooks. In a study by Martin and Kimmons (2020), researchers determined:

> [F]aculty relied on implicit criteria for determining material quality that revolved around content accuracy, predictability, etc., and OER were often not considered out of copyright fears and other uncertainties. Among departments, then, sticking to the previous practice of using non-open materials was seen as a safe (and quick) choice, and though everyone claimed to be familiar with and supportive of OER, concerns about quality and copyright often prevented their consideration. (p. 137)

Additional training and professional development as well as support to locate quality materials would help alleviate some of these concerns while helping faculty find quality OER content to integrate into their courses (Galloway, 2020; Herbert et al., 2022; Martin & Kimmons, 2020).

Some faculty believe that using OER allows them to utilize more student-centered approaches in their teaching, such as collaborative learning, active learning strategies, and flipped classroom methods (Jung et al., 2017). From the rapid switch to online modalities during the Covid-19 pandemic, OER provided useful in online contexts that may have implications for future online pedagogical strategies (Lee & Lee, 2021). In addition, many faculty have noticed a significant improvement in average scores in their students' first exams, as the students gain access to OER materials immediately rather than waiting to purchase textbooks after receiving financial aid disbursements. Furthermore, implementation of OER leads to improvement in student engagement, more homework time, easier access to textbooks, and more frequent use of the texts than has been noted with traditional books (Jung et al., 2017).

For the current study, the researchers posed the following research question and hypothesis:

- Do faculty perceive a difference in academic rigor and course material quality when provided with a syllabus listing traditionally used course materials and one listing OER materials?
- Hypothesis: There will be no significant difference when evaluating syllabi that include either OER or traditional materials.

Method

Participants

A total of 53 participants attempted the survey. Those respondents who did not fully complete the survey were removed. In addition, there was a technical glitch with the branching mechanism of the survey when participants selected anything but the "other" discipline option they received a second set of syllabi pairs to examine that were randomly assigned and may not have been connected to their discipline. Once these two factors were removed, 20 participants remained in the analyses. Thus, the attrition rate was 62%. Of those reported, 65.6% were female; 34.4% were male; 63.9% were 35-54; 54.8% adjunct professors; 41.9% teach undergrad; 38.7% teach both (only 19.4% teach graduate alone).

Participants were recruited from two universities, one a public comprehensive university in the Midwest and one a private research university in the Northeast, as well as from list-servs of two professional organizations directed towards faculty in higher education.

Survey

The purpose of the survey was to determine whether participants perceived traditional or OER textbooks and materials as better or equal quality with as little influence from the survey questions on those perceptions as possible. The researchers attempted this under the guise of participants rating syllabi sections (e.g., course description, course objectives, and course materials) individually and side-by-side comparisons in the first section of the survey. After reviewing the consent form and completing demographic questions, participants encountered a question asking them to indicate which discipline/ content area they teach in. The disciplines listed were very broad in an attempt to keep the survey as concise as possible. All disciplines available are listed in Table 1. If participants did not see a match, then they could choose the "other" option. The survey would then route participants to the syllabi pair that matched their reported discipline. If "other" was chosen, participants were routed to a random field of study.

The syllabi pairs were modified from actual course syllabi, provided with the permission of faculty and stripped of identifying information. Two syllabi were created for each discipline listed in Table 1. The first syllabus (Syllabus 1) of each pair listed a traditional textbook under course materials. The second syllabus (Syllabus 2) of each pair listed an OER title as the course material but did not specifically refer to it as such. Each syllabus also included traditional information such as course description, course outcomes, and grading policies. For example, for the World Languages syllabi pair, French 101(Introductory French) was chosen as the representative course. The course materials listed on each syllabus are shown in Table 2.

Table 1. *Reported disciplines closest to participants' own*

ANSWER	%	Count
Science, engineering, or math (MATH)	12.1%	4
Arts and humanities (AH)	6.1%	2
Social sciences (SS)	6.1%	2
Health sciences / nursing (HSN)	12.1%	4
Education (Ed)	24.2%	8
Other	3.0%	1
Business (Bus)	6.1%	2
Computer and technology (CT)	27.3%	9
World languages (WL)	3.0%	1
Total	100%	33

Table 2. *Example of course material listed on Humanities French 101 Syllabi Pair*

Syllabus	Course Material
1 (Traditional)	1. Amon, Evelyne, et al. *Vis à vis Connect Access Card Beginning French*. 6th ed., McGraw-Hill College, 2015. 2. Workbook/Laboratory Manual to accompany Vis-à-Vis 6th edition
2 (OER)	Kelton, K., Guilloteau, N., & Blyth, C. (2017). *Français Interactif.* Center for Open Educational Resources and Language Learning, Austin, Texas.

Some syllabi also included course outlines or schedules. The syllabi pairs were designed not to be identical with only different textbooks. They were intended to represent different sections of a course or different offerings of the same course at different institutions, therefore minimizing the emphasis on the course material component. Course objectives, course descriptions, and other elements were different between the two syllabi of each pair.

Participants were instructed to review each syllabi of their assigned pair independently and then to compare them after rating each separately. Participants rated the syllabi on a one to five Likert scale (1 = "Strongly Disagree," 3 = "Neither Agree nor Disagree," 5 = "Strongly Agree") for each of the sections for the syllabi with traditional textbook(s), OER textbook(s), and then each section, again, side-by-side. Syllabi were first rated on the description indicating whether it described appropriate material covered for the subject; were objectives comparable to other equivalent courses in

participant's program; and did syllabi indicate materials that are academically rigorous. Then, participants specified whether they were familiar with the materials listed in the syllabi or not. The same questions were posed for both traditional and OER syllabi. Finally, the survey asked participants to indicate which syllabi matched the level of rigor of their program's courses for both descriptions and objectives and which materials participants believed were most appropriate or acceptable for the course. Participants had the option to select either syllabus, both, or neither.

Once this section was completed, participants moved onto the second section, which gave them a random syllabus to evaluate unless they had selected the "other" discipline option. They then proceeded to a third section which made participants aware of the true purpose of the study, to compare traditional and OER materials. They were given a description of OER before proceeding. The remaining questions asked participants about their perceptions of OER outright. Specifically, whether this knowledge impacted their perceptions of the OER syllabus; they believe OER materials in general are of equal rigor to traditional textbooks; OER materials are appropriate for their field; and if they would use OER materials in their courses. The last question broke down responses to undergraduate courses only, graduate courses only, and both. Finally, an open-ended question was posed to collect perceptions on challenges and strengths of OER materials.

The research team first sent the survey out to others they knew to pilot test the survey to ensure the branching mechanisms worked as intended. Those who completed the survey reported no issues, and their responses were not collected or included in the final statistical analyses. Despite this, a technical problem presented itself when the responses were first analyzed. The research team intended for participants to only complete each section one time. However, it was discovered that participants who did not choose the "other" option were routed to first fill out the first section in their discipline, and then they were routed to a random discipline in the first section before moving onto the second. Those who chose the "other" option were only routed to complete the first section one time. Paired samples t-tests were used to analyze the quantitative data. The qualitative data was coded and analyzed for tone of response.

Results

The results of the study indicate participants found no difference in perceived quality between syllabi containing traditional course materials and syllabi containing OER in terms of academic rigor, learning outcomes, and course materials, as seen in Figure 1.

Specific paired sample test results, as in Table 3, show no statistically significant results for any of the syllabi pairs, regardless of discipline represented in the syllabi.

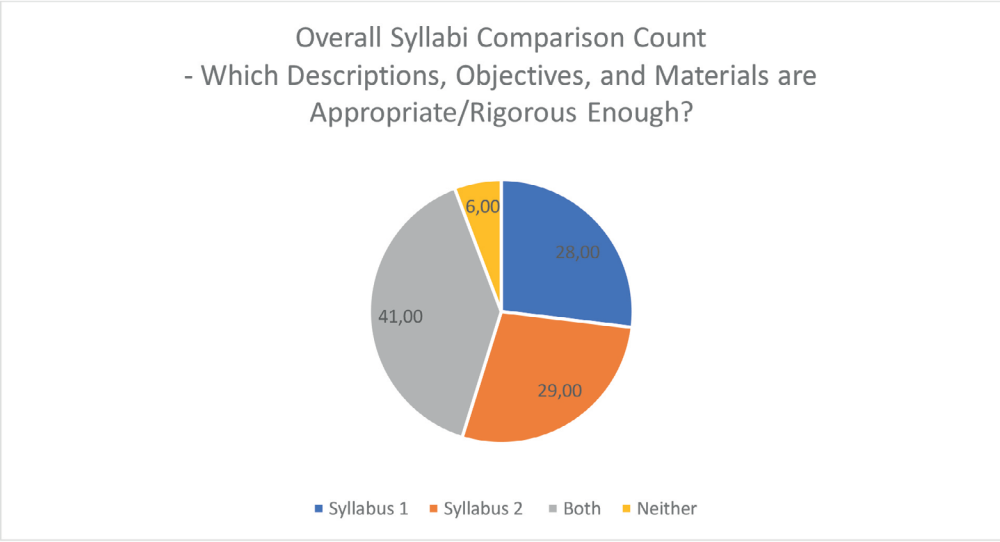

Figure 1. Overall Syllabi Comparison where "Syllabus 1" represent traditional syllabi, and "Syllabus 2" represent OER syllabi.

Table 3. *Paired Samples Test*

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Math1_Mean-Math2_Mean	-.13333	.18257	.08165	-.36003	.09336	-1.633	4	.178
Pair 2	WL1_Mean - WL2_Mean	.05556	1.04172	.42528	-1.03766	1.14878	.131	5	.901
Pair 3	CT1_Mean - CT2_Mean	-.11111	.40369	.16480	-.53475	.31253	-.674	5	.530
Pair 4	SS1_Mean - SS2_Mean	.47619	1.19965	.45342	-.63330	1.58568	1.050	6	.334
Pair 5	HSN1_Mean - HSN2_Mean	-.50000	.70711	.50000	-6.85310	5.85310	-1.000	1	.500
Pair 6	Bus1_Mean - Bus2_Mean	.66667	.33333	.19245	-.16138	1.49471	3.464	2	.074
Pair 7	Ed1_Mean - Ed2_Mean	-.24242	.79009	.23822	-.77321	.28837	-1.018	10	.333
Pair 8	AH1_Mean - AH2_Mean	-.73333	.92496	.41366	-1.88183	.41516	-1.773	4	.151

When asked follow-up questions about OER after completing the comparison and having the purpose of the study revealed, the majority of the 19 participants who responded to these questions (89.5%) indicated they would feel comfortable choosing OER options for both undergraduate and graduate courses they may teach. Most of the respondents (89.5%) also answered they felt OER was appropriate for their field, and 84.2% indicated they felt OER was equal to traditional textbooks in terms of academic rigor. Only three respondents indicated their perceptions about the quality of the second (OER) syllabus changed once it was revealed as OER. Results of the OER-specific questions lean in an overall positive direction, with participants indicating they favor OER for most classes they would teach, feel positive about the ability to reduce financial burdens on students, but have some reservations or need more information about choosing quality OER that remains up to date in rapidly changing fields.

In a final open-ended question, participants were asked "After having a brief overview of OER, do you see any potential challenges or strength in utilizing this type of materials for your courses?" The fourteen responses were coded into the parent topics of "strengths" and "challenges." Subtopics were assigned to each parent topic and can be seen in Table 4.

Table 4. *Qualitative Response Parent and Subtopics with response counts*

Parent Topic	Subtopic	Response Count
Challenges	Control of content	1
	Locating material	3
	Quality of resources	6
	Resources needed	1
	Review of material is needed	2
	ROI for author	1
	Support needed	2
Strengths	Eliminating the textbook	1
	Lower cost	2
	Open access	1
	Student benefits	1
	Variety of perspectives	1

Responses indicated participants appreciated the zero cost of OER materials and the flexibility they offer instructors. However, concerns about OER included needing support to find resources, keeping the material up-to-

date, ongoing curation of the materials, and the return on investment to the author or faculty. One participant stated:

> *The challenges with using OER materials are vetting of the material, and ongoing curation. This always leads back to "payment." In traditional textbooks, experts are paid to vet and curate the content. The problem is that the content may already be out-of-date for advanced classes in dynamic disciplines such as computer science and educational technology. For OER, the author can be "paid" by an increase in reputation in the field, or through a grant. But I have not seen many examples of these models carrying through to ongoing curation. The same may be said for vetting.*

The qualitative results show more hesitancy about the adoption, authoring, and overall use of OER materials. The majority of responses, while perhaps not necessarily negative in tone, show more hesitancy about the quality and availability of support and resources. As one participant indicated, the decision to use OER requires *the material have to be compared in a case by case basis, just like comparing two traditionally licensed textbooks.*

Discussion

Establishing no difference in perceived quality between syllabi containing traditional course materials and syllabi containing OER in terms of academic rigor, learning outcomes, and course materials could significantly aid faculty to feel more comfortable in the adoption of OER and lower cost course materials. Promotion and use of OER to widen access to education at all levels, both formal and informal, in a perspective of lifelong learning, have the potential to contribute to social inclusion, racial and gender equity, and special needs education. However, a general lack of awareness still exists about what OER actually are and how they can help students beyond cost saving (Elder et al., 2020). As supporters and proponents of OER, it is important to ensure our promotion of OER does not impact students negatively in the long term, for example, when applying for graduate school or professional programs that may require a syllabus review. Though studies have shown textbook and course readings are of lower importance than other entrance criteria (AUTHOR), proponents of OER should not neglect to consider this aspect with potential adopters or stakeholders in their institutions.

The results of this study would support the conclusions of AUTHOR that course materials, including OER, do not impact the perception of the quality or academic rigor of a given course or program at least based on the syllabi. This does not mean there are no challenges to those perceptions. As we have seen from the qualitative data, participants in this study are concerned with the relevance of the materials as well as the ability of OER materials to stay current with trends and innovations of a given field even as they are

supportive of the ability of OER to lower costs for students.

Those who support OER initiatives and programming on their campuses should consider addressing issues of academic rigor, the relevance and currency of OER, the curation of OER in the long-term, and the perception of OER quality with potential OER adopters. Discussions with program directors or admissions staff may also provide insight into institution practices and criteria and whether OER use would potentially complicate student admission. Data from this study would suggest that those concerns would be minimal but variation between institution to institution may exist.

Another possible interpretation of this study is that the general awareness of OER materials, including brand-name awareness of organizations such as OpenStax is very low among the study participants. It is possible that adding a question to the final OER section of the survey such as "Did you recognize syllabi 2 as using OER?" could help determine the level of participant OER awareness prior to taking the survey.

Limitations

Several limitations exist for this study. First and foremost, the technical difficulties discovered after survey distribution limited the amount of viable data collected and therefore limited the conclusions that can be drawn. Because the researchers did not want to bias the results of the syllabi analysis, OER was not discussed prior to the syllabi questions nor was it the focus of the syllabi evaluation questions. Therefore, participants could have had preexisting knowledge about OER that may have impacted their judgement on one or both syllabi they examined. Additional blind studies comparing the perceived quality of syllabi using traditional and OER material in a wider range of disciplines is needed. Additional open-ended questions could further illuminate participants' opinions of OER options in their specific disciplines.

Conclusion

The data gathered from this study support the researchers' hypothesis that there is no difference in the perception of syllabi using traditional textbooks compared with syllabi using OER materials in terms of academic rigor or quality, at least at face value. Only a small number of participants changed their viewpoint once the use of OER was revealed, possibly indicating the need for further professional development on the topic for OER or a deeper exploration of individual perceptions of OER in specific disciplines.

Conflicts of Interest

We have no conflicts of interest to disclose.

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