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Developing an Undergraduate Business Course Using Open Educational Resources

Donna Kotsopoulos
Western University, dkotsopo@uwo.ca

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Developing an Undergraduate Business Course Using Open Educational Resources

Abstract
There are growing concerns about the affordability and accessibility of post-secondary education. This has resulted in increased attention to the inclusion of open educational resources (OERs) as course materials rather than commercial course resources. OERs are mostly cost-neutral for students. In this research, an elective course for business students was developed using only OERs. To assist with the selection of OERs to be included in this course, an OER evaluation tool available online was used. Resources that were considered and were evaluated using the tool included traditional OERs (fully open), those in the public domain (unrestricted by licensing), and resources that are publicly available for educational purposes. An important contribution of this research is the extension of the definition of OERs to include publicly available resources. This paper reports on the results of this process and students' perceptions about the inclusion of OERs in their course. Recommendations for further research and for practice are shared.

Le caractère abordable et l'accessibilité de l'enseignement post-secondaire suscitent des préoccupations croissantes. Ceci a eu pour résultat une attention accrue portée sur l'inclusion de ressources éducatives ouvertes en tant que matériel de cours plutôt que les ressources de cours commerciales. Les ressources éducatives ouvertes sont généralement neutres en termes de coût pour les étudiants et les étudiantes. Dans cette recherche, un cours électif pour étudiants et étudiantes de commerce a été créé uniquement à partir de ressources éducatives ouvertes. Afin d'aider à choisir quelles ressources inclure dans ce cours, on a utilisé un outil d'évaluation des ressources éducatives ouvertes, disponible en ligne. Les ressources qui ont été prises en considération et qui ont été évaluées à l'aide de l'outil comprenaient les cours à ressources éducatives ouvertes (entièrement ouvertes), ceux qui appartenaient au domaine public (sans restriction de licence) et les ressources qui étaient disponibles publiquement à des fins éducatives. Une importante contribution à cette recherche est l'extension de la définition de ce qui constitue des ressources éducatives ouvertes pour y inclure les ressources disponibles publiquement. Cet article présente les résultats de ce processus ainsi que les perceptions des étudiants et des étudiantes concernant l'inclusion des ressources éducatives ouvertes dans leur cours. On y présente également des recommandations pour des recherches supplémentaires et pour la pratique.

Keywords
accessibility, business, open educational resources, post-secondary; accessibilité, affaires, ressources éducatives ouvertes, post-secondaire

Cover Page Footnote
Donna Kotsopoulos is a professor and the Dean of the Faculty of Education, cross-appointed to the DAN Department of Management and Organizational Studies, Faculty of Social Science, at Western University, London, Canada. Previously, she was a professor in the department of Management and Organizational Studies, in the Faculty of Arts and Social Science, at Huron at Western, London, Canada. Correspondence regarding this article should be directed to dkotsopo@uwo.ca.

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Conversations about the use and need for open educational resources (OERs) are growing in their occurrences across post-secondary institutions (Miao et al., 2016). OERs are typically defined as "teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions" (United Nations Educational Scientific and Cultural Organization, 2019).

OERs can be in the form of whole courses or individual course components (e.g., rubrics, assessments, videos, textbooks, etc.). OERs are technically free of costs to students. Faculty, students, and even governments alike are particularly concerned about rising costs for post-secondary education; thus, a growing need for cost-neutral resources such as OERs is emerging (Lewarne et al., 2017; Miao et al., 2016; Seaman & Seaman, 2018).

Many faculty already report using some OERs in courses that have traditionally used commercial textbooks (Seaman & Seaman, 2018). Existing research reports the merits of using OERs since the term was initially coined in 2002 (Miao et al., 2016). A large-scale study of 21,822 students found that OERs used in biology, history, sociology, and psychology courses improved end-of-course grades and decreased D, F, and Withdrawal letter grades rates for all students (Colvard et al., 2018).

In a Canadian study of students enrolled in an introductory psychology course, students perceived the quality of the open textbook as equal to a commercial textbook, and there were no differences in course outcomes between those assigned to the commercial versus those assigned to the open textbook cohorts (Jhangiani et al., 2018). Barneva et al. (2018) recently studied business students' perceptions about the use of OERs in business courses that do not typically have textbooks. Consistent with other studies, students reported a preference for digital OERs, the advantage of the availability of OERs after the course ended, and cost savings benefits.

Common discourse amongst faculty and curriculum developers is that the development of full course OERs or identifying suitable OERs for inclusion in courses is a substantial task and burden (Barneva et al., 2018; Downes, 2007; Seaman & Seaman, 2018). The workload stems from having to source OERs that meet academic and other potential criteria/standards (i.e., accessibility, cultural sensitivity, use for educational purposes). In contrast, a textbook adopted from a commercial publisher is often accompanied with a plethora of resources that support instruction and learning. Likewise, the use of scholarly journal articles through library repositories facilitates the use of materials that are at least vetted by experts through peer review.

A web search easily reveals a growing body of organizations that are providing full course OERs (i.e., textbook, instructional material, exam questions) that are free of cost and which can potentially alleviate the tremendous workload linked to developing OERs. The workload in these instances is not fully eliminated, however, given that there is still the need for vetting and potentially the refinement of OERs by the instructor.

In this paper, I report on *Project Open & Accessible* which examines the use of OERs in an elective course in a post-secondary business program. OERs in this research include those that are consistent with the traditional definition of OERs provided earlier and those that are "publicly available," but perhaps not in the "public domain."

An important distinction exists between those resources that are in the public domain and those that are publicly available. Many resources may be available online and thus publicly available and yet not be considered in the public domain because they are subject to copyright laws or specific licencing restricting their reproduction and sharing – particularly for commercialized purposes. These copyright laws may differ from country to country. Public domain resources

typically have no restrictions on sharing or use. These resources are the most open in the literal sense.

Other resources, consistent with the definition of OERs, may be publicly available and have licensure to indicate the degree or type of distribution, sharing, and modification that is permitted by the creator/owner of the resource. Creative Commons is a global and non-profit agency that provides different licences that outline ranges of distribution and sharing of creative and knowledge-based resources (Creative Commons, 2020). For example, the popular TED Talks videos available online have Creative Commons licencing which outlines use and distribution (TED Talks, 2020). While TED Talks are publicly available, they are not in the public domain because of this licensure. Resources that are publicly available but not considered in the public domain may still be accessible for use in educational purposes. For example, YouTube has "fair use" guidelines for posted videos for use in educational settings that are not identified as in the public domain or as having Creative Commons licencing (YouTube, 2020).

For the purpose of this research, the definition of OERs is consistent with the traditional definition above of OERs and is importantly broadened to include resources that are publicly available for fair use for educational purposes (e.g., online articles, podcasts, videos, websites). This is a novel extension of the traditional view of OERs and a noteworthy contribution of this research. This broadening of the definition is also deeply practical and reflects the realities of many instructors and even students that make use of online resources in teaching and learning. In my teaching, I have often included online videos, talks, and professional articles as instructional material. I would surmise that many instructors also do so. This broadened definition then invites deliberate contemplation on the legitimacy of the use of such artifacts in teaching and learning – both from an open access perspective and from the perspective of pedagogical or content-knowledge value.

This research reports on my process of and reflections on developing and implementing a fully OER course, with an additional focus on accessibility and universal design – explained shortly. This process included identifying a tool to help me evaluate potential OERs to include in a seminar course related to equity, diversity, and inclusion (EDI) in organizations for business students. My anticipation was that by using a tool to assist in the process, I could standardize the evaluations of resources and this may assist with streamlining the workload. It would also provide an important guide to help me ensure that resources were meeting a certain threshold across a variety of factors. I also reflected on the students' experiences through survey data and patterns of use of course OERs.

Admittedly, the sample size of students in this research was small. However, this research makes a number of important contributions, including distinguishing between publicly available and public domain OERS, sharing the process of using an evaluation tool in developing a course using OERs, considerations related to accessibility/universal design, and understanding student experiences and use patterns. These contributions are important, particularly given that the trend for OERs inclusion is likely to grow and, thus, may provide a roadmap for others.

Theoretical Framework

Project Open & Accessible was inspired by four rationales. First, I too am concerned with the rising cost of post-secondary education and the impact this was having on the affordability of education for students. Second, I am committed to keeping disciplinary resources most relevant and current and thus find myself often redesigning my courses based on newer versions of

commercial textbooks or including the most recent scholarly articles, books, and so forth. In short, I am continually engaging in significant adaptation and supplementing of resources in courses. Newer versions of commercial texts, if adopted in the course, meant that my students could not benefit from the resale of textbooks.

Third, I am increasingly concerned with the relevance of primarily text-based resources for current-day learners, and I wonder about integrating other publicly available web resources and technologies (e.g., text readers, video, podcasts) into my teaching. Finally, as a result of legislation which I describe next, accessibility is increasingly an important priority in course design for me, and I anticipate will be across the post-secondary sector. Thus, my intention was to adopt principles of universal design for learning (UDL; Rose, 2001a), also outlined shortly, into all my courses.

These rationales for this research fully align with my teaching philosophy which has four components: (a) teaching is about relationships; (b) effective teaching is about being current and relevant; (c) teaching is also about the in-between spaces, and (d) teaching should reflect a commitment to EDI. This research is guided and informed by reflexive inquiry theories (Cunliffe, 2016; Lyle, 2017). Reflexive inquiry is the study of praxis where researchers interrogate their own and their participants realities and the way in which knowledge is constructed (Cunliffe, 2016; Lyle, 2017).

Lyle (2017) explains that "reflexive inquiry compels us to engage in critical introspection in the moment, as well as after it, while simultaneously critiquing our social-political contexts" (p. vii). She further describes reflexivity as "the researcher's consciousness of [their] role in and effect on both the act of doing research and its eventual findings" (p. vii). Similarly, Cunliffe (2016) defines reflexivity as "questioning what we, and others, might be taking for granted—what is being said and not said—and examining the impact this has or might have" (p. 741). Reflexive inquiry approaches praxis with a "skepticism toward how indeed we have been doing these things all along" (Macbeth, 2001, p. 37). Reflexive inquiry is firmly framed through a social justice lens and is wholly consistent with my teaching philosophy and the rationales for this research.

Accessibility for Ontarians with Disability Act (AODA)

The jurisdictional context for this research and my teaching is relevant and a key rationale for the use of OERs. As with many jurisdictions worldwide, there is a growing commitment to create accessible environments for citizens. In 2005, The Government of Ontario (2005a) introduced the *Accessibility for Ontarians with Disability Act* (AODA). This legislation is centered on a bold commitment to make Ontario fully accessible by 2025. The comprehensive legislation addresses many aspects of a fully inclusive society, including an *Information and Communications Standard* which outlines requirements for accessible formats and communication supports, accessible websites and web content, and requirements for compliance for educational and training resources and resources (see Part II, sections 12, 14, and 15).

Accessible formats and communication supports will require post-secondary institutions to provide persons with disabilities, upon request of the provision, accessible formats and communication supports. Accessible websites and web content regulations will require post-secondary institutions to ensure that their websites are fully accessible by adhering to the *Web Content Accessibility Guidelines (WCAG) 2.0* (Essential Accessibility, 2019). These internationally accepted guidelines, developed by disability experts, provide a comprehensive framework for ensuring web-based content is compliant with internationally accepted accessibility standards. Some examples of the functionality that will be required include: alternatives to non-

text elements such as images, content meaning be independent from the ability to perceive colours, sounds, and size, links and web pages have self-explanatory titles, resizing text capabilities, extended time limited function restrictions, and so forth.

Finally, the following is stipulated within the AODA for educational institutions regarding educational and training resources:

> **15.** (1) Every obligated organization that is an educational or training institution shall do the following, if notification of need is given:
> 1. Provide educational or training resources or materials in an accessible format that takes into account the accessibility needs due to a disability of the person with a disability to whom the material is to be provided by,
> i. procuring through purchase or obtaining by other means an accessible or conversion ready electronic format of educational or training resources or materials, where available, or
> ii. arranging for the provision of a comparable resource in an accessible or conversion ready electronic format, if educational or training resources or materials cannot be procured, obtained by other means or converted into an accessible format. (Government of Ontario, 2005a)

The implementation of the AODA requirements has been phasing in gradually since 2005. Full implementation of the three mentioned here specifically was required by January 2021 for the public sector (Government of Ontario, 2005b).

While accessibility can be proposed to be a concern of all sectors of society for some time, these legislative shifts in Ontario will mean even greater accountability and commitment from post-secondary institutions. One example provided by Government is related to school libraries. As of 2015, libraries in educational and training institutions must provide, purchase, or borrow accessible or conversion-ready formats of print resources and materials. By January 2020, institutions were required to provide accessible digital and multimedia resources and materials (Government of Ontario, 2005c).

AODA and Universal Design

A fully accessible Ontario will undoubtedly change how post-secondary instructors choose educational resources for *all* students and will even increase the role of librarians in supporting educational curriculum development. While there are caveats within the legislation for instances where accommodations may not be possible, the AODA may result in less capacity and less justification for post-secondary institutions to demand evidence through approval processes for the need for accessible accommodations. Coupled with emerging accessibility legislation, such as the AODA, compliance at the instructor level to provide accessible course resources will undoubtedly be increasingly required. Such legislative changes in Ontario will result in the need to engage in more inclusive pedagogy. Consequently, applying principles of UDL as well as the use of OERs may become the norm across the sector because these resources may be more accessible than traditional print and exclusively text-based formats.

UDL was originally proposed for physical spaces and then appropriated to learning environments (Rose, 2001a, 2001b). Rose (2001c) proposed that the UDL was a framework that minimized barriers for learners with disabilities and maximized learning by “flexibly

accommodating individual differences in recognition, strategy, or affect respectively" (p. 67). UDL provides learners with "wider variety of options . . . [and UDL] curricula require a similar range of options for accommodating a broad spectrum of learners" (p. 67). The basic proposition was that "alternatives for accessing, using, and engaging with learning materials reduce barriers for individuals" (p. 67). Coincidentally and noteworthy are the proximity of the temporal origins of OERs (i.e., 2002; Miao et al., 2016) and UDL (2001). While UDL was proposed initially as a means of supporting learners with disabilities, a plethora of studies support that principals of UDL are good for all learners. For example, a recent international compilation of studies in higher education demonstrate the value of UDL for learners in post-secondary institutions (Bracken & Novak, 2019).

While much of the research related to learning styles dismisses the notion that one particular style of learning is preferred by learners and, when used impacts learning outcomes, this body of research does at least illustrate that learners do have preferences (Husmann & O'Loughlin, 2019; Knoll et al., 2017); as such, this further supports the notion UDL is good for all learners. OERs engaged in through a UDL lens can only serve to be beneficial for learners in the post-secondary sector and thus is a major pedagogical framework underpinning this research.

Method

Participants

This research took place at a small liberal arts and primarily undergraduate university, situated in a large urban setting. The course that this research took place in was an elective second year course in an undergraduate management and organizational studies program. The course was seminar style (i.e., discussion, student participation) and focused on EDI in organizations. I taught this course in a face-to-face format. The course was a half credit course (36 instructional hours over 12 weeks) offered in the fall term of the academic year. This was the first offering of this course, in this program, and thus was an ideal opportunity to innovate in the pedagogical design.

In total, there were 14 students who enrolled in this course. With the exception of one student, all students were enrolled as majors in the program. There were two female students and 12 male students. The smallness of the class was consistent with seminar courses offered in this university. All students agreed to participate in the research.

Procedures

Development of this course began almost six months prior to the start. The first phase of the development involved identifying a tool to assist with OERs selection. I did not opt to use a fully developed OER after doing a preliminary search of available OERs related to EDI in business education. There were none that appeared closely relevant and, moreover, I was particularly interested in using OERs that were publicly available and were not traditionally included as OERs (i.e., not in the public domain or under sharing and use licensure). A major consideration when evaluating all resources, but particularly those that were publicly available, was systematically assessing the quality of the content while simultaneously assessing the level of accessibility. Unlike those OERs that are vetted through peer review (i.e., journal articles), many of the resources that were publicly available would rely entirely on my own scholarly evaluation.

Consequently, as a preliminary step in the development of this course, I engaged in a search for a tool to assist with source evaluation. Rubrics and checklists often serve different purposes. A rubric can serve to evaluate the quality of a source. A checklist may only serve to identify criteria as present rather than evidence of quality. I conducted an internet search to look for potential rubrics/checklists used specifically to evaluate OERs. The checklist that I used (see Figure 1), which I discuss shortly, assessed quality as well as other criteria. In my view, while I refer to this tool as a checklist, this tool was a combination of a checklist and a rubric. Following the identification of the checklist, I then proceeded to identify OERs to include in this course.

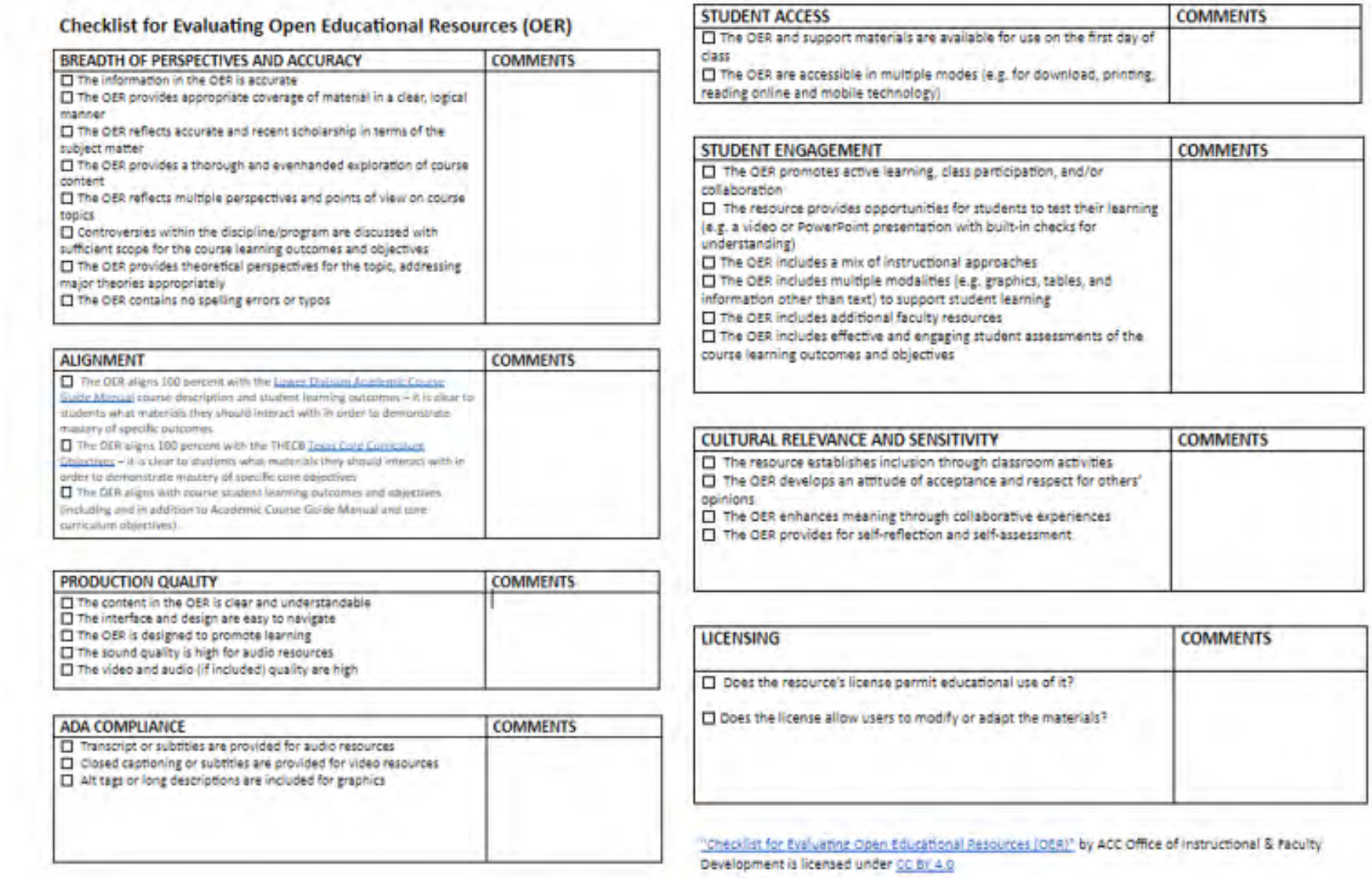
There were six categories of OERs ultimately included in this course: (1) class presentations, (2) websites, (3) scholarly articles, (4) podcasts, (5) videos, and (6) course handouts and documents. Websites include articles on professional and corporate websites such as Harvard Business Review and various finance firms. Scholarly journal articles were from databases available through the institution's library. These articles are free to the students for the duration of their academic studies at the institution. Given that access is linked to student fees, these OERs are examples where the cost is on the surface neutral, yet still tied indirectly to student fees. In total, 75 OERs were used in this course, of which 18 of these were presentations prepared by me for the lecture and thus were consistent with standards typically associated with course appropriate resources (e.g.., scholarly contributions, research-based, peer reviewed).

The final 57 OERs were selected from 87 resources. Twenty-five of these OERS were publicly available (e.g., videos, podcasts, websites), and the remainder where permitted for use through Creative Commons. All resources were vetted using the checklist mentioned above (see Table 1 for a summary of types of OERs). Some of these were listed as required for the course's weekly classes and others were optional.

The reason that a large number of OERs were identified and ultimately included in this course was because of my commitment to provide a fully accessible course and my efforts to apply UDL principles. Therefore, in addition to each required OER for the course being accessible (e.g., font size, audio), I also wanted to provide students with options for similar scholarly content across a range of different types of OERs for each of the 12 weeks of course instruction. I should note that not all the 57 OERs identified were fully accessible based on AODA standards (e.g., not tagged within the PDF to support a screen reader). Accessibility was not an option in some of the OERs included, and yet the value of the resource was still deemed high. This was mitigated for by providing alternative resources with parallel content for each week of the course.

Figure 1

OER checklist developed by ACC Instructional & Faculty Development Department (Austin Community College District, 2019)



Checklist for Evaluating Open Educational Resources (OER)

BREADTH OF PERSPECTIVES AND ACCURACY	COMMENTS
☐ The information in the OER is accurate ☐ The OER provides appropriate coverage of material in a clear, logical manner ☐ The OER reflects accurate and recent scholarship in terms of the subject matter ☐ The OER provides a thorough and evenhanded exploration of course content ☐ The OER reflects multiple perspectives and points of view on course topics ☐ Controversies within the discipline/program are discussed with sufficient scope for the course learning outcomes and objectives ☐ The OER provides theoretical perspectives for the topic, addressing major theories appropriately ☐ The OER contains no spelling errors or typos	

ALIGNMENT	COMMENTS
☐ The OER aligns 100 percent with the Lower Division Academic Course Guide Manual course description and student learning outcomes – it is clear to students what materials they should interact with in order to demonstrate mastery of specific outcomes ☐ The OER aligns 100 percent with the THECB Texas Core Curriculum Objectives – it is clear to students what materials they should interact with in order to demonstrate mastery of specific core objectives ☐ The OER aligns with course student learning outcomes and objectives (including and in addition to Academic Course Guide Manual and core curriculum objectives)	

PRODUCTION QUALITY	COMMENTS
☐ The content in the OER is clear and understandable ☐ The interface and design are easy to navigate ☐ The OER is designed to promote learning ☐ The sound quality is high for audio resources ☐ The video and audio (if included) quality are high	

ADA COMPLIANCE	COMMENTS
☐ Transcript or subtitles are provided for audio resources ☐ Closed captioning or subtitles are provided for video resources ☐ Alt tags or long descriptions are included for graphics	

STUDENT ACCESS	COMMENTS
☐ The OER and support materials are available for use on the first day of class ☐ The OER are accessible in multiple modes (e.g. for download, printing, reading online and mobile technology)	

STUDENT ENGAGEMENT	COMMENTS
☐ The OER promotes active learning, class participation, and/or collaboration ☐ The resource provides opportunities for students to test their learning (e.g. a video or PowerPoint presentation with built-in checks for understanding) ☐ The OER includes a mix of instructional approaches ☐ The OER includes multiple modalities (e.g. graphics, tables, and information other than text) to support student learning ☐ The OER includes additional faculty resources ☐ The OER includes effective and engaging student assessments of the course learning outcomes and objectives	

CULTURAL RELEVANCE AND SENSITIVITY	COMMENTS
☐ The resource establishes inclusion through classroom activities ☐ The OER develops an attitude of acceptance and respect for others' opinions ☐ The OER enhances meaning through collaborative experiences ☐ The OER provides for self-reflection and self-assessment	

LICENSING	COMMENTS
☐ Does the resource's license permit educational use of it? ☐ Does the license allow users to modify or adapt the materials?	

"Checklist for Evaluating Open Educational Resources (OER)" by ACC Office of Instructional & Faculty Development is licensed under CC BY 4.0

Table 1
Course OERs

Type	*n*
Class presentations	18
Websites	17
Scholarly journal articles	6
Videos	8
Podcasts	10
Course handouts/documents (instructor generated)	16
Total	75

Following the approval of my institutional Research Ethics Board application, students were invited to participate in this research at the beginning of the course. Invitations to participate were presented to the students by a colleague, and this information was kept confidential until after the course ended to mitigate for any undue concerns about participation and their course experiences given that I was conducting the research and the course instructor. Following the completion of the course, the information about student consent was then provided to me.

All students were invited to provide feedback through an electronic survey which I developed specifically for this project. The survey explored a student's understanding of their own learning styles, their preferences for different OERs made available to them, and their use of resources in the course (see Table 2). Students were sent a single-use link to the survey and invited to complete the survey if they had consented to participate in the study. The survey consisted of a mix of yes/no, agree/agree, and short answer questions. Students also had the opportunity to comment through standardized university end of term course evaluations.

Table 2
Survey questions

1.	My least preferred way of learning is through:
2.	I don't have one preferred way of learning but can learn using a variety of styles.
3.	Podcasts have been part of other course required materials.
4.	Videos have been part of other course required materials.
5.	Professionally published articles have been part of other course required materials. Examples: Harvard Business Review, KPMG Publications, TD Publications, documents.
6.	I use the audio feature when accessing journal articles online so that I can listen rather than read.
7.	If there is an option to increase font size when reading online, I usually do.
8.	When watching videos, I like to use subtitles/closed caption feature.
9.	If given a choice of the same material in different formats, this is what I would choose.
10.	If given an option to do an assigned reading (book or article) or use some other assigned material (video, podcast), I usually read the article too because I worry I might miss something.

Finally, although the course was offered in a face-to-face format, the course also had an online course platform where OERs were stored and made accessible. This online platform also gathered data analytics about resource use and this data was used to examine patterns of use amongst students.

Data Sources and Analysis

Data sources included survey data from the students, data analytics on the resource use patterns from the online course platform, and results from my analysis of the tools that were considered and used to analyze the 57 OERs ultimately used in this course. The survey data and the data analytics allowed for the students' experiences to be considered. My own experiences are interwoven throughout the analysis and this is consistent with reflexive inquiry (Cunliffe, 2016; Lyle, 2017). For illustrative purposes, select examples will be presented. Some descriptive statistics are provided.

Results

At the onset of the course, I explained to students my commitments to affordability, accessibility, and my decisions to not use a commercial textbook for the course. The students expressed overt gratitude about not having to buy another textbook. In this business program, the average cost of textbooks per year was approximately $1000.

Students also learned at this preliminary introduction to the course that publicly available resources such as videos, podcasts, and professional articles and publications such as industry reports would be included as weekly required OERs. Some students had shared how in other courses, they had received workshops or instruction on why *not* to use publicly available resources, citing failure to meet academic standards as the main concern. I assured students at this first introduction that each OER was vetted by me based on an established criterion that, among other things, evaluated the appropriateness of the content.

Perhaps the greatest challenge of building this course was related to identifying a tool to evaluate OERs to include in the course that were not scholarly articles in the traditional sense (i.e., journal articles, peer-reviewed sources). Numerous rubrics or checklist tools were found easily through an online search that were sharable and/or modifiable through licensure.

Common components across the rubrics and checklists included: (a) alignment to course objectives/relevance, (b) current and accurate research-based content, (c) production quality, (d) interactivity, and (e) accessibility compliance. Key differences were noted across the rubrics and checklists in these areas: (a) adaptability, (b) evidence of EDI considerations, (c) assessment considerations, and (d) availability of supplementary resources. Some of the rubrics were very, very comprehensive – so much so that utility at the course instructor level was in question, from my perspective. This is not to suggest that such comprehensiveness would not be appropriate in other contexts or for other purposes.

The checklist that guided my evaluation of potential OERs was from Austin Community College District, Library Services (2019) (see Figure 1). This checklist was made available through a Creative Commons License 4.0 which permits downloading, modifications, and so forth (Creative Commons, 2020). The categories on this checklist are as follows: (a) Breadth of Perspective and Accuracy, (b) Alignment, (c) Production Quality, (d) ADA Compliance (author's standards of accessibility compliance) (e) Student Engagement, (f) Student Access, (g) Cultural Relevance and Sensitivity, and (h) Licensing. It was a tremendously useful tool that helped shaped my thinking about OERs to be included and about how I could modify or develop a tool specific for my needs and my context.

It should be noted that almost all the 57 OERs used in this course failed to fully meet the expectations of this checklist. That may be because the checklist is perhaps more aligned to OERs

that are full courses or resources that have some level of Creative Commons licensing outlining sharing and use. For example, few of the OERs provided supplementary learning resources – especially those that were publicly available. Similarly, recommendations for assessment or companion assessment resources were mostly absent from almost all of the OERs.

A further consideration in selecting OERs for this course was selecting those that were mutually complimentary in terms of content but yet different in terms of the type of OERs (e.g., scholarly article paired with a video) in order to support principles of UDL and accessibility. This was also tremendously challenging and time consuming. One example of where this worked well was during the week which explored the concept of intersectionality. For this week, students were assigned a reading that was available online through our library repository by Dr. Kimberlé Crenshaw (1991). They also had the option of viewing a video on YouTube, through fair use provisions, of the author delivering similar content (Crenshaw, 2016). Across both of these OERs, students had the option of hearing audio, increasing font size, and seeing subtitles. Neither of these resources made recommendations for assessment or offered the opportunity to make adaptations. Student engagement was higher with the video OER. Indeed, student user data for this week showed that all but one student opted to view the video rather than read the article. Key concepts were also reiterated in my own class presentation.

Another example, and one of only a few that provided assessment opportunities and supplementary resources, was a website that was used primarily during the week in which accessibility and the AODA were explored. The Ontario Human Rights Commission (2019) provided a plethora of resources, case studies, and assessment tools that supported teaching about disability along with other aspects of human rights addressed in other parts of the course.

Working with these publicly available OERs was mostly novel for the students. The survey administered at the end of the term reported that students most often encountered traditional academic resources in their other courses such as journal articles, case studies, and course texts. All the students reported that they had rarely or never encountered podcasts in their courses and, surprisingly for me, only 35% of the students reported using videos often in other courses. Yet, the majority of students identified reading or text-based resources as being their least preferred format for learning. All the students reported being comfortable learning using any type of format. Moreover, if given a preference, most of the students preferred resources in a video format (n = 11), and only one student preferred an academic article. Two students indicated that a podcast was preferred, and these students cited the convenience of listening whenever and wherever as key.

Despite being in a business program where, for example, case studies and business oriented reports might be anticipated, 57% of students reported that they rarely or never used professionally published resources and/or articles. From an accessibility perspective, few students used the audio feature associated with some PDFs, but 50% reported increasing text and using subtitles when watching videos. These results may reflect a lack of knowledge of some of the accessibility features that are available.

Discussion

While some might argue that instructors who are experts in content matter ought to have an understanding about the suitability of resources to include in a course, this assumption may be faulty when considering the inclusion or use of OERs. First, artifacts such as videos and podcasts are, for the most part, publicly available; therefore, an additional level of scrutiny is necessary across some categories described earlier, including assessing for fair use for educational purposes,

and certainly in terms of content suitability. Second, assessing the extent to which an artifact is simultaneously accessible is an unfamiliar layer of evaluation for most instructors. Consequently, an evaluation tool can be extremely helpful in designing UDL experiences that include OERs and may certainly expedite the review of materials if a standardized tool is used.

Consistent with other studies, and without question, developing an OER course is tremendously time consuming (Barneva et al., 2018; Downes, 2007; Seaman & Seaman, 2018). Even if an instructor uses a fully predeveloped OER course, modifications and customization may still be necessary. I began the process of developing my course six months prior and was still in active development of the course while the course was in process. It is simply that time consuming to adequately vet resources and even more time consuming to endeavor to provide accessible options for each topic. Ideally, one might begin such development one year prior to the actual launch of the course, although this is often unrealistic. I do believe that the checklist assisted me greatly in focusing and standardizing my process.

The reflexive inquiry required a deeper level of reflection for me as I engaged both introspectively and retrospectively about the relationship of the course goals with the OERs and the students' experiences. This was time consuming on a weekly basis throughout the course. Nevertheless, the process, from my perspective, was worthwhile. I am committed to accessible education in all forms – financially, from a learning environment perspective, and from an inclusion perspective and these concerns are growing for students and post-secondary institutions (Lewarne et al., 2017; Miao et al., 2016; Seaman & Seaman, 2018).

Typically, full course OERs are vetted using accepted academic standards of peer review and include resources that have also undertaken that level of review (Seaman & Seaman, 2018). The exercise of using a checklist to evaluate OERs to include as part of the course was, while taxing, nevertheless essential from a quality and accountability perspective. Furthermore, it is only through this process that thoughtful reflection about gaps and accessibility can be fully considered, alongside how the OERs would inform and shape my instruction.

While the checklist used was helpful (Austin Community College District, 2019), it was not fully aligned with AODA standards in my jurisdiction (Government of Ontario, 2005a), and it was not necessarily intended for the evaluation of publicly available resources to determine, for example, the extent to which the resource could be used or shared for educational purposes. It would be useful to engage in additional adaptations and then assess the extent to which alignment occurs both with existing fully developed OER courses and OERs.

Assessment was not a common element of the OERs' rubrics and checklists that were explored online and not an aspect of most of the OERs that were included in my course. In some cases, assessment was embedded in the rubric or checklist but not fully made explicit as a category. This course did not have tests, mid-term exams, or final exams. Courses with these types of assessments often benefit from test banks provided by commercial text providers and even some full OER course providers. This is not to say that assessment resources would not be useful in a course that does not use testing as a primary form of assessment. It just may be less so than those courses that do have exams and/or tests. The availability of assessment resources would be a consideration for an instructor who is exploring the use of OERs for inclusion in an OER course, or selecting a fully developed OER course, or fully developing an OER course.

Different than I have previously experienced in my teaching, students in this course regularly introduced other publicly available resources during the course. A benefit of using OERs is the opportunity to engage in social construction of knowledge (Downes, 2007). This occurred and was evident by the introduction of numerous resources by students. It was an exciting and

unanticipated occurrence that allowed for the shared construction of knowledge. It allowed me to learn from the students and to see that, yes, indeed the students were benefiting from the course and the OERs selected. This was also a clear indicator to me of strong student engagement with the content and the OERs selected. I surmise that this occurred because publicly available resources were viewed as acceptable content. As the students had reported, videos, podcasts, and web articles were, for the most part, infrequently included as course content in other courses.

Conclusions and Recommendations for Further Research

This research is a reflexive inquiry where I am simultaneously the researcher and the participant. This is an example of scholarship *in* the practice of teaching and learning. Studies of this nature are critically important in advancing post-secondary pedagogy.

To summarize, using an evaluation tool to guide my thinking about which OERs to include in the course was tremendously helpful. It helps focus one's gaze and refine one's thinking in a structured way. However, none of the OERs selected fully met each of the criteria in the checklist that I used. I would suggest identifying or developing a guiding checklist or rubric as the starting point for implementing OERs in a course for any instructor but novices in particular.

Another key recommendation from this preliminary analysis is the need to intentionally, regardless of the evaluation tool selected or developed to evaluate OERs, include specific criteria for those resources that are publicly available rather than developed for common and shared distribution through licensing agreements. Further research here would be necessary.

The types of OERs mattered in this course and serve as an important alert. Students, when given the option, preferred a video rather than text-only OERs, even with those that could be accompanied with a screen reader. The use of at least two different types of OERs for each week of the class proved to be very effective in terms of student engagement with the OERs. One recommendation for other instructors is the inclusion of videos as required course material.

There are limitations when using publicly available resources as OERs. Most of the resources I explored and used that were publicly available were not intended explicitly for educational purposes and so modifying the resource was not possible. This created added layers of complexity in parsing out sections of, for example, videos to include. As mentioned earlier, assessment resources were particularly scarce. A repository of publicly available OERs with accompanying teaching materials would be an interesting future goal.

There are numerous lines of further inquiry. First, it would be important to examine how students used OERs to meet the course objectives and learning outcomes. It would also be useful to examine the extent to which the use of certain types of OERs supported the development of a student's understanding more than other types (i.e., podcasts versus videos) and the way in which accessibility features were used and understood by students. I made the assumption that students were aware of text readers, subtitles, etc., but this may not have been the case. This information might be helpful in identifying more fully how to build UDL environments using OERs.

It would be interesting to study how students use the checklist I used to evaluate resources either as part of the course as an assignment or for to recommending resources for sharing. This may illuminate other ways of evaluating student thinking and growth within the course. Finally, it would be very beneficial to examine if an OER evaluation tool makes developing such materials/course less cumbersome for others, too. Given the widely reported workload associated with such work, identifying tools that could support these efforts would be tremendously useful.

Admittedly, the sample size for this study is small and is a limitation. The findings and recommendations are nevertheless useful. Further research is necessary to establish if these results would still hold true amongst a larger participant group.

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