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Educational Technology for Strong Schools: Using Open Pedagogy and Collaborative Writing to Create a Student-Authored Open Access Book

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Open educational resources (OER) are learning materials that are available for free under a creative commons license. Open educational resources and open-access materials have made it easy to connect students to a world of learning at their fingertips. This paper outlines how to use open-access textbooks as collaborative writing projects, drawing from a case study with 22 students at the Asian University for Women. The authors provide an overview of the intersection of open-access textbooks and collaborative writing projects and describe the case study results.

Keywords: Open Educational Resources, OER, Open Pedagogy, Open Access Textbooks, Collaborative Writing

Introduction

The term open educational resources (OER) was coined in 2002 during a forum held by UNESCO as the open provision of educational resources, enabled by information and communication technologies, for consultation, use, and adaptation by a community of users for non-commercial purposes. In the past two decades, the concept has gained undeniable momentum. Several nations and states have formally adopted or announced policies relating to the adoption of OER and open textbooks (Wiley et al., 2014).

Open educational resources and open-access materials have made it easy to connect students to a world of learning at their fingertips (Bonk, 2009). However, despite the wide availability of video tutorials, open online courses, podcasts, wiki pages, articles, and even textbooks, finding the right fit for your students in their specific learning environment, particularly in underserved rural communities or education in emergency settings, is challenging. As educational content becomes increasingly available for free over the Internet, using online learning materials effectively has become the new frontier for students and teachers. Information is everywhere, but how can learners actively make sense of their everyday information ecology and contribute to their learning environment?

This paper outlines how to use open-access textbooks as collaborative writing projects drawing from a case study with 22 students at the Asian University for Women (AUW). The authors provide an overview of the intersection of open-access textbooks and collaborative writing projects and describe the case study results.

Literature Review: Open Pedagogy, Open Access Textbooks and Collaborative Writing

The "open movement" is a broad term that encompasses various initiatives and philosophies that advocate for open access, open content, open source, and open standards. This section focuses specifically on open pedagogy, open textbooks and collaborative writing.

Open pedagogy refers to instructional methods that emphasise openness, cooperation, and student-centred learning. Wiley and Hilton (2018) suggest that OER-enabled pedagogy involves students creating new artefacts or revising/remixing existing OER, that the new artefact has value beyond supporting the learning of its author, that students are invited to publicly share their new artefacts or revised/remixed OER, and that students are invited to openly license their new artefacts or revised/remixed OER. This method challenges traditional, teacher-centred approaches and encourages students to actively participate in their own and one another's learning.

An interview study with educators by Paskevicius and Irvine (2019) identified three distinct approaches to openness around pedagogy: the exploration of open resources, explicitly building openness into the process of designing learning resources and artefacts, and openness as an approach to publishing. The three types of openness are not mutually exclusive and may be combined as part of a learning activity.

In a collaborative open-access textbook project, the instructor enlists the students as textbook authors and editors. The class work can be based on an existing textbook, or the students can research and write their own content. It is an example of project-based learning that offers a way to encourage students to engage critically with open educational resources, strengthen their research and writing skills, contextualise learning material to their region, language, and culture, and enhance coding and web literacy skills. In a multilingual classroom, it can empower bilingual learning and target-language acquisition.

Initially, the primary motivation for open textbooks was to address the high costs of learning materials in higher education, where they can account for a quarter of a student's expenses. This led to a number of widely successful projects, such as OpenStax and BCcampus. Over time, the focus shifted to pedagogic opportunities (Ferguson et al. 2017). Open textbooks can challenge the established relationship between students and knowledge (Ferguson et al. 2017). The open textbook is adaptable. Students can edit and amend an open textbook as part of their study or, as in our case study, create their own textbook as a form of authentic assessment.

According to a case study by Wang and Wang (2017), adopting an open-access textbook is more work for the teacher compared to a commercial textbook. The authors suggest discipline-based communities of practice (CoP) to ease the workload problem. Open pedagogy projects offer an alternative, student-centred opportunity to adapt or create regionally relevant content. As Wiley, Bliss, and McEwen state: "Localization is one of the most important and least understood aspects of open educational resources" (Wiley, Bliss, and McEwen 2014, 786). Algers (2020) argues that open textbooks give teachers more control over their curriculum and allow them to tailor their teaching to the specific needs of their students. Open textbooks can also be used to promote collaboration between teachers and students, as teachers can invite students to contribute to the development and improvement of the textbooks. This makes open textbooks an ideal focus point for collaborative writing and peer learning.

Collaborative writing provides a social context for learning and fosters both interdependence and a sense of learner independence. Fung (2010) observes that during the collaborative process, students learn how to write from peers, share knowledge and make decisions together, deal with disagreements and conflicts, use strategies, and collaborate. The collaborative production of an open textbook exemplifies the concept of "non-disposable assignments." In contrast to "disposable assignments," which are perceived as tedious to complete by students and are loathed to be graded by instructors, open pedagogy offers the opportunity to develop lasting, meaningful products (Wiley and Hilton 2018).

Open pedagogy can familiarise students with practices of critical appraisal of information, productive feedback, and the value of peer review. Ruland Staines (2018) discusses the potential of digital open annotation to enhance scholarly communication. The author argues that annotation could be used to facilitate post-publication discussion, add expert commentary, and streamline the peer-review process.

McLure and Sinkinson (2020) discuss the importance of involving students in the development and implementation of open educational resources (OER) and open education initiatives. The authors argue that student participation and voice are essential for creating effective and inclusive OER programs that meet the needs of diverse student populations. Trust, Maloy, and Edwards (2022) examine how actively engaging students as curators and designers of OERs through project-based learning as part of an open educational practice shaped students' attitudes, motivation, and learning. Their findings indicate that shifting students' roles from consumers to curators and creators of OERs increased motivation, improved attitudes about learning, aided the achievement of course learning objectives, and supported the development of valuable skills for 21st century success. Similarly, Sousa, Pedro & Santos (2023) stress the importance of the technical openness and tools that might contribute to fostering users' engagement with OER, helping them to act as producers and contributors rather than mere passive receivers. Based on survey data, Marshall (2023) described positive attitudes of faculty towards the potential of OER as a mechanism for student collaboration. Maultsaid and Harris (2023) describe open pedagogy as a process to involve a diverse population of students and embody care as an all-encompassing practice, in which '*students are intended to be thriving, collaborative learners creating knowledge together*'. It is a mindset that discourages the model of students as customers, and instead views learners as respected co-creators.

Lin (2019) investigated undergraduate students' perceptions of using only open educational resources in an introductory course at a large public university in the United States. Students reported several advantages of using OER, including textbook cost savings, access to dynamic and plentiful materials, mobile learning, and the development

of self-directed skills and copyright guidelines. At the same time, the students reported several challenges, including lacking a tactile sense with electronic material, slow internet connections, unclear instruction and guidance, and insufficient self-regulation skills.

An exploratory survey on open pedagogy by Hilton et al. (2019) revealed that a minority of students surveyed preferred traditional teaching and learning methods. These students felt that traditional activities were more familiar, and therefore more beneficial, and overall more effective in terms of learning outcomes. On the other hand, many students reported that open pedagogy had greater educational value compared to traditional methods, and indicated that it led to increased knowledge of the material. Ashman (2023) surveyed the perceptions of faculty and students at a Canadian university across several courses. While students and faculty recognized the benefits of open pedagogy, each stakeholder group expressed challenges with the time-consuming nature.

Methodology

The article is a single case study that includes teacher observations, reflections and evaluation results. Single case studies are particularly useful for exploring and documenting innovative teaching practices, offering detailed insights into their implementation, challenges, and successes.The Scholarship of Teaching and Learning (SoTL) benefits greatly from single case studies by offering in-depth insights into pedagogical practices, student learning experiences, and educational outcomes.

The scholarly reflection in this article aligns broadly with the tradition of action research and action inquiry (cf. Adelman 1993). Action research is conducted with the goal of deliberately developing new courses of action in the setting being studied. It explores practical questions either individually or in a team (cf. Carr and Kemmis 2003)—as in the case of academic teachers researching their own teaching or instructional designers exploring emerging technologies. Instead of testing pre-defined hypothesis, the data collection is typically ongoing and occurs as by-products of professional activities. The scholarly value is derived and measured by the depth of reflexivity and the value for other practitioners. The outcomes contribute to the scholarship of teaching and learning (SoTL) through pragmatic and actionable advice (on the connection between SoTL and action research, see Harvey and Jones 2021).

Felten (2013) articulated five guiding principles for the Scholarship of Teaching and Learning (SoTL) to enhance educational research and practice. These principles emphasize the centrality of student learning, the importance of context-specific inquiry, the necessity for methodologically sound research, the value of partnering with students as co-inquirers, and the imperative to publicly share findings. We thoroughly evaluated the innovative approaches implemented within the course through an anonymous online survey, reflective observations, and external peer feedback on the student work products. We also gave students opportunities to share their perspective and perceptions and make use of their own work products. By systematically documenting and disseminating our open pedagogy case study, we want to encourage faculty colleagues to either integrate the open pedagogy format we developed into their course or enhance the original concept with their modifications.

Case Study

The Asian University for Women Master of Arts in Education program is a unique hybrid graduate program launched with aspirations to empower women in education, particularly the brightest young female reformists/entrepreneurs dedicated to creating an impact through educational development in society. The majority of the students who took part in this class are Afghan evacuees and/or belong to minority communities.

In response to the Taliban invasion of Afghanistan, the Asian University of Women (AUW) launched an inaugural Master of Education graduate program in January 2022 to help women continue their education. The program is delivered through hybrid instruction: international experts offer online classes, and teaching fellows facilitate these classes on the ground.

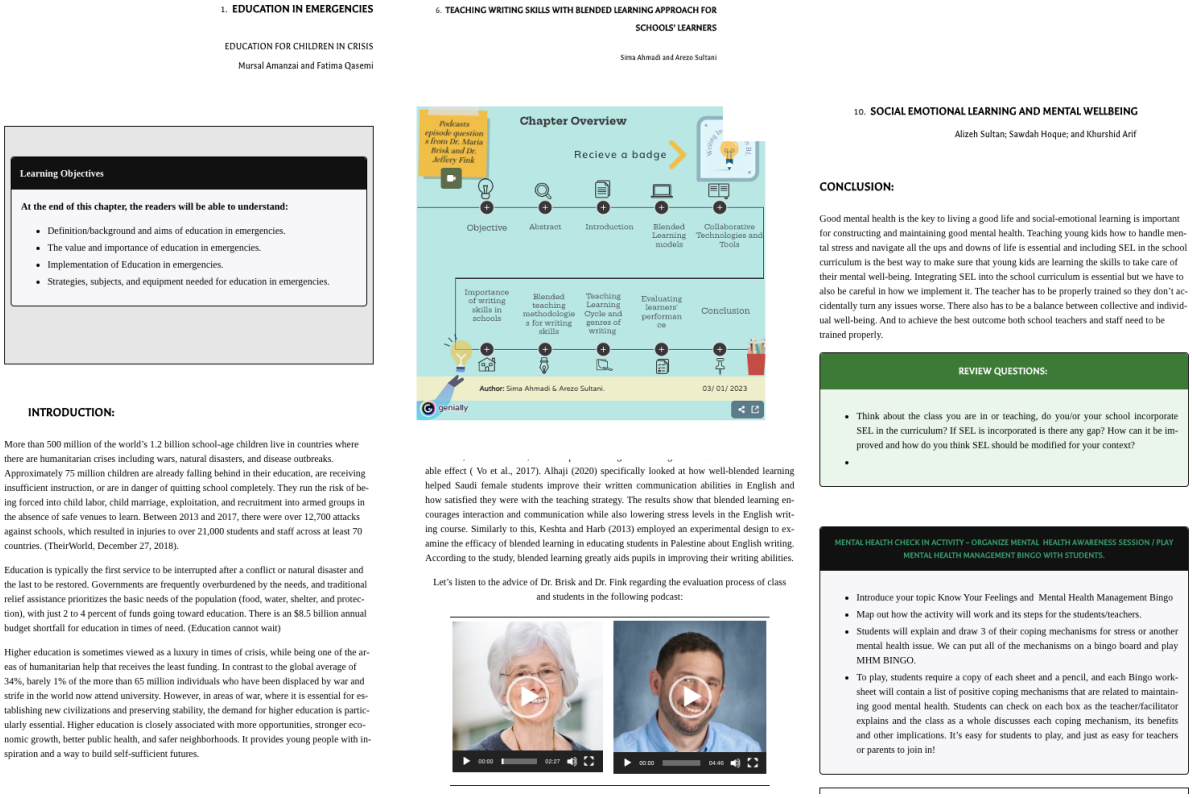
The graduate program lays the groundwork for the "Women Teaching Women, Women Learning from Women" (WTW-WLW) initiative at AUW. The initiative aims to empower women by creating a chain through education. It provides full scholarships to women from marginalized communities to attend AUW and trains them to become teachers, education leaders, or policymakers. After graduating from AUW, these women return to their communities to teach other women and girls. The WTW-WLW initiative is based on the belief that education is the key to empowering women, improving communities, and alleviating poverty.

The "Strong Schools" course is a project-based learning class that integrates students' future paths as educators, policymakers, innovators, and school founders. Over the winter term of 2022, students have been working collaboratively to write a book about 'Strong Schools' that covers multiple aspects of initiating or teaching in a secondary school. Each of the chapters reflects students' critical ideas, observations, creative thinking, and lessons from distinguished guest speakers from around the globe, with the sessions held simultaneously in the class. The chapters are also a fruitful outcome of students' interactive discussion and mind-mapping activities throughout the sessions. In addition, the book remarks on a crucial part of the modern educational process, the use of diverse technology and tools in education and learning.

We used the e-book publishing platform 'Pressbooks,' along with a variety of other technologies, to support multimodal content and introduce students to instructional design tools and techniques, i.e., Hypothes.is for peer review, Genial.ly for infographics, Anchor.fm for podcasting, and Badgr for micro-credentials. The classroom set-up itself is the epitome of education technology in distant learning, where it's fully digitalized with a hybrid mode of delivery, with students sitting in the class and the professor delivering lectures via Zoom from the USA to Bangladesh, with the teaching fellow's support on the ground for class activities.

- Pressbooks: Teachers and students used Pressbooks to create an interactive textbooks and other learning materials.
- Hypothes.is: Teachers and students used Hypothes.is to annotate, review and discuss chapter content with each other and with the teacher.
- Genial.ly: Students used Genial.ly to create interactive presentations, infographics, and other visual content for their chapters.
- Canvas Credentials (Badgr): Students used Badgr to create digital badges that the future readers of their chapters could earn for completing specific learning objectives or achieving certain milestones.
- Spotify (Anchor.fm): Students used Anchor.fm to create podcast episodes for their chapter topics.

Figure 1
Sample Chapter Content from https://pressbooks.pub/schools/



1. **EDUCATION IN EMERGENCIES**

EDUCATION FOR CHILDREN IN CRISIS

Mursal Amanzai and Fatima Qasemi

Learning Objectives

At the end of this chapter, the readers will be able to understand:

- Definition/background and aims of education in emergencies.
- The value and importance of education in emergencies.
- Implementation of Education in emergencies.
- Strategies, subjects, and equipment needed for education in emergencies.

INTRODUCTION:

More than 500 million of the world's 1.2 billion school-age children live in countries where there are humanitarian crises including wars, natural disasters, and disease outbreaks. Approximately 75 million children are already falling behind in their education, are receiving insufficient instruction, or are in danger of quitting school completely. They run the risk of being forced into child labor, child marriage, exploitation, and recruitment into armed groups in the absence of safe venues to learn. Between 2013 and 2017, there were over 12,700 attacks against schools, which resulted in injuries to over 21,000 students and staff across at least 70 countries. (TheirWorld, December 27, 2018).

Education is typically the first service to be interrupted after a conflict or natural disaster and the last to be restored. Governments are frequently overburdened by the needs, and traditional relief assistance prioritizes the basic needs of the population (food, water, shelter, and protection), with just 2 to 4 percent of funds going toward education. There is an $8.5 billion annual budget shortfall for education in times of need. (Education cannot wait)

Higher education is sometimes viewed as a luxury in times of crisis, while being one of the areas of humanitarian help that receives the least funding. In contrast to the global average of 34%, barely 1% of the more than 65 million individuals who have been displaced by war and strife in the world now attend university. However, in areas of war, where it is essential for establishing new civilizations and preserving stability, the demand for higher education is particularly essential. Higher education is closely associated with more opportunities, stronger economic growth, better public health, and safer neighborhoods. It provides young people with inspiration and a way to build self-sufficient futures.

6. **TEACHING WRITING SKILLS WITH BLENDED LEARNING APPROACH FOR SCHOOLS' LEARNERS**

Sima Ahmadi and Arezo Sultani

Chapter Overview

Recieve a badge

Objective | Abstract | Introduction | Blended Learning models | Collaborative Technologies and Tools

Importance of writing skills in schools | Blended teaching methodologies for writing skills | Teaching Learning Cycle and genres of writing | Evaluating learners' performance | Conclusion

Author: Sima Ahmadi & Arezo Sultani. 03/ 01/ 2023

able effect (Vo et al., 2017). Alhaji (2020) specifically looked at how well-blended learning helped Saudi female students improve their written communication abilities in English and how satisfied they were with the teaching strategy. The results show that blended learning encourages interaction and communication while also lowering stress levels in the English writing course. Similarly to this, Keshta and Harb (2013) employed an experimental design to examine the efficacy of blended learning in educating students in Palestine about English writing. According to the study, blended learning greatly aids pupils in improving their writing abilities.

Let's listen to the advice of Dr. Brisk and Dr. Fink regarding the evaluation process of class and students in the following podcast:

10. **SOCIAL EMOTIONAL LEARNING AND MENTAL WELLBEING**

Alizeh Sultan; Sawdah Hoque; and Khurshid Arif

CONCLUSION:

Good mental health is the key to living a good life and social-emotional learning is important for constructing and maintaining good mental health. Teaching young kids how to handle mental stress and navigate all the ups and downs of life is essential and including SEL in the school curriculum is the best way to make sure that young kids are learning the skills to take care of their mental well-being. Integrating SEL into the school curriculum is essential but we have to also be careful in how we implement it. The teacher has to be properly trained so they don't accidentally turn any issues worse. There also has to be a balance between collective and individual well-being. And to achieve the best outcome both school teachers and staff need to be trained properly.

REVIEW QUESTIONS:

- Think about the class you are in or teaching, do you/or your school incorporate SEL in the curriculum? If SEL is incorporated is there any gap? How can it be improved and how do you think SEL should be modified for your context?
-

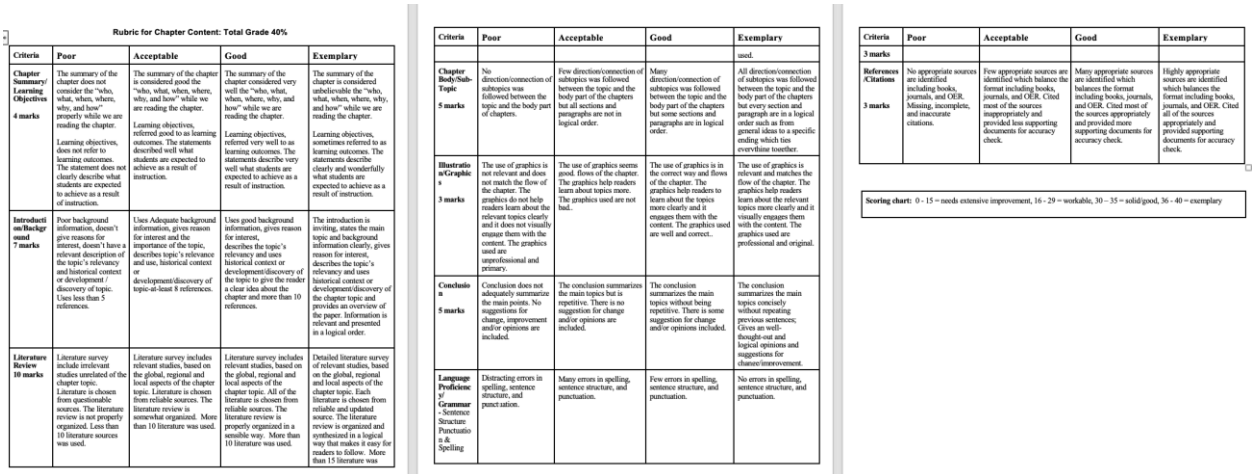
MENTAL HEALTH CHECK IN ACTIVITY - ORGANIZE MENTAL HEALTH AWARENESS SESSION / PLAY MENTAL HEALTH MANAGEMENT BINGO WITH STUDENTS.

- Introduce your topic Know Your Feelings and Mental Health Management Bingo
- Map out how the activity will work and its steps for the students/teachers.
- Students will explain and draw 3 of their coping mechanisms for stress or another mental health issue. We can put all of the mechanisms on a bingo board and play MHM BINGO.
- To play, students require a copy of each sheet and a pencil, and each Bingo worksheet will contain a list of positive coping mechanisms that are related to maintaining good mental health. Students can check on each box as the teacher/facilitator explains and the class as a whole discusses each coping mechanism, its benefits and other implications. It's easy for students to play, and just as easy for teachers or parents to join in!

The class resulted in a textbook with 11 chapters, organized into three sections, as well as a podcast channel. The book can be accessed at https://pressbooks.pub/schools/.

Students used their chapters as writing samples in applications and productively interacted with writing and review tools that they were previously unfamiliar with. The students were also empowered to co-design the grading criteria by developing rubrics.

Figure 2
Chapter Rubric Developed by Students



Rubric for Chapter Content: Total Grade 40%

Criteria	Poor	Acceptable	Good	Exemplary
Chapter Summary/ Learning Objectives **4 marks**	The summary of the chapter does not consider the "who, what, when, where, why, and how" while we are reading the chapter. Learning objectives, does not refer to learning outcomes. The statement does not clearly describe what students are expected to achieve as a result of instruction.	The summary of the chapter is considered good the "who, what, when, where, why, and how" while we are reading the chapter. Learning objectives, referred good to as learning outcomes. The statements described well what students are expected to achieve as a result of instruction.	The summary of the chapter considered very well the "who, what, when, where, why, and how" while we are reading the chapter. Learning objectives, referred very well to as learning outcomes. The statements describe very well what students are expected to achieve as a result of instruction.	The summary of the chapter is considered unbelievable the "who, what, when, where, why, and how" while we are reading the chapter. Learning objectives, sometimes referred to as learning outcomes. The statements describe clearly and wonderfully what students are expected to achieve as a result of instruction.
Introduction/Background 7 marks	Poor background information, doesn't give reasons for interest, doesn't have a relevant description of the topic's relevancy and historical context or development / discovery of topic. Uses less than 5 references.	Uses Adequate background information, gives reason for interest and the importance of the topic, describes topic's relevance and use, historical context or development/discovery of topic-at-least 8 references.	Uses good background information, gives reason for interest, describes the topic's relevancy and uses historical context or development/discovery of the topic to give the reader a clear idea about the chapter and more than 10 references.	The introduction is inviting, states the main topic and background information clearly, gives reason for interest, describes the topic's relevancy and uses historical context or development/discovery of the chapter topic and provides an overview of the paper. Information is relevant and presented in a logical order.
Literature Review 10 marks	Literature survey include irrelevant studies unrelated of the chapter topic. Literature is chosen from questionable sources. The literature review is not properly organized. Less than 10 literature sources was used.	Literature survey includes relevant studies, based on the global, regional and local aspects of the chapter topic. Literature is chosen from reliable sources. The literature review is somewhat organized. More than 10 literature was used.	Literature survey includes relevant studies, based on the global, regional and local aspects of the chapter topic. All of the literature is chosen from reliable sources. The literature review is properly organized. Less than 10 literature was used.	Detailed literature survey of relevant studies, based on the global, regional and local aspects of the chapter topic. Each literature is chosen from reliable and updated source. The literature review is organized and synthesized in a logical way that makes it easy for readers to follow. More than 15 literature was

Criteria	Poor	Acceptable	Good	Exemplary
				used.
Chapter Body/Sub-Topic **5 marks**	No direction/connection of subtopics was followed between the topic and the body part of chapters.	Few direction/connection of subtopics was followed between the topic and the body part of the chapters but all sections and paragraphs are not in logical order.	Many direction/connection of subtopics was followed between the topic and the body part of the chapters but some sections and paragraphs are in logical order.	All direction/connection of subtopics was followed between the topic and the body part of the chapters but every section and paragraph are in a logical order such as from general ideas to a specific ending which ties everything together.
Illustration/Graphics **3 marks**	The use of graphics is not relevant and does not match the flow of the chapter. The graphics do not help readers learn about the relevant topics clearly and it does not visually engage them with the content. The graphics used are unprofessional and primary.	The use of graphics seems good. flows of the chapter. The graphics help readers learn about topics more. The graphics used are not bad..	The use of graphics is in the correct way and flows of the chapter. The graphics help readers to learn about the topics more clearly and it engages them with the content. The graphics used are well and correct..	The use of graphics is relevant and matches the flow of the chapter. The graphics help readers learn about the relevant topics more clearly and it visually engages them with the content. The graphics used are professional and original.
Conclusion **5 marks**	Conclusion does not adequately summarize the main points. No suggestions for change, improvement and/or opinions are included.	The conclusion summarizes the main topics but is repetitive. There is no suggestion for change and/or opinions are included.	The conclusion summarizes the main topics without being repetitive. There is some suggestion for change and/or opinions included.	The conclusion summarizes the main topics concisely without repeating previous sentences; Gives an well-thought-out and logical opinions and suggestions for chanee/improvement.
Language Proficiency/ Grammar - Sentence Structure Punctuation & Spelling	Distracting errors in spelling, sentence structure, and punctuation.	Many errors in spelling, sentence structure, and punctuation.	Few errors in spelling, sentence structure, and punctuation.	No errors in spelling, sentence structure, and punctuation.

Criteria	Poor	Acceptable	Good	Exemplary
3 marks				
References /Citations **3 marks**	No appropriate sources are identified including books, journals, and OER. Missing, incomplete, and inaccurate citations.	Few appropriate sources are identified which balance the format including books, journals, and OER. Cited most of the sources inappropriately and provided less supporting documents for accuracy check.	Many appropriate sources are identified which balances the format including books, journals, and OER. Cited most of the sources appropriately and provided more supporting documents for accuracy check.	Highly appropriate sources are identified which balances the format including books, journals, and OER. Cited all of the sources appropriately and provided supporting documents for accuracy check.

Scoring chart: 0 - 15 = needs extensive improvement, 16 - 29 = workable, 30 – 35 = solid/good, 36 - 40 = exemplary

Furthermore, students reported an increase in both writing and digital literacy skills based on their exposure to and use of various online tools and environments.

Table 1 provides an overview of the components we developed in this course, the flow of activities, the tools, and the results. For future iterations of the course, we will consider writing sprints and additional mid-course writer conferences.

Table 1
Session and activity flow of the 'Strong Schools' course

Session	Collaborative Writing Activity	Description	Tools	Results / Products
1	Forming groups, selecting topics	Students form writing teams of 2-3 peers and decide upon a topic. To avoid overlap, they individually state preferences, then form groups, then decide on a first and second choice. Students draft book covers, and jointly decide on title.	Typical collaboration tools, Post-Its Whiteboard. E-Book environment (e.g. Pressbooks)	Author Teams Table of Contents Book cover drafts Book title
2	Structure and genre decisions	The main topic of the chapter is placed in the center of the mind map. Important themes or questions form branches connected to the center. In addition, students (with guidance) decide on standardized genre expression for each chapter (e.g., learning objectives, expert corner, review questions, glossary terms). Students upload photo and bio for author section of chapter.	Mindmap or Concept Map Collaboration tools (brainstorming, mood board) to decide on text types for the book.	Chapter outline (entered in Pressbooks) Sample chapter structure (for example as Word or Google doc).
3	Literature Review	Students use academic databases and search engines, and organize the results using a bibliographic reference management tool.	Zotero	Reference section of chapter, literature added to outline
4	First Draft (extended outline)	Writing teams work on an extended outline, producing text.	Pressbooks	More robust draft, including glossary terms, learning objectives, paragraphs
5	Writer Conference	Writing teams meet with instructor for feedback,	Zoom	Directions for writing team
6	Peer Review	Each chapter is assigned 2-3 reviewers, who leave comments, questions and suggestions using online annotation tool with limited visibility to the peer review circle.	Hypothesis	Hypothesis group, annotations per chapter
7	Interview/ Podcast	Each chapter team conducts and records 1-3 expert interviews. Students write a script, and recruit expert interview partners.	Anchor.FM	Podcast, transcript or excerpt is part of chapter, video/audio can be embedded in chapter.
8	Infographic	Infographics offer an opportunity for students to summarize information.	Genial.ly	Multimedia infographic embedded in book chapter.
9	Microcredentials	Based on their learning objectives or transfer learning activities students create badges that readers of their chapter can earn.	Badgr (Canvas Credentials)	Badge integrated into chapter content.
10	Final Draft, Quality Criteria	Students finalize their chapter, and generate rubrics to evaluate each other's work.	Pressbooks Grammar.ly	Close-to-finished chapter Rubrics for chapter quality

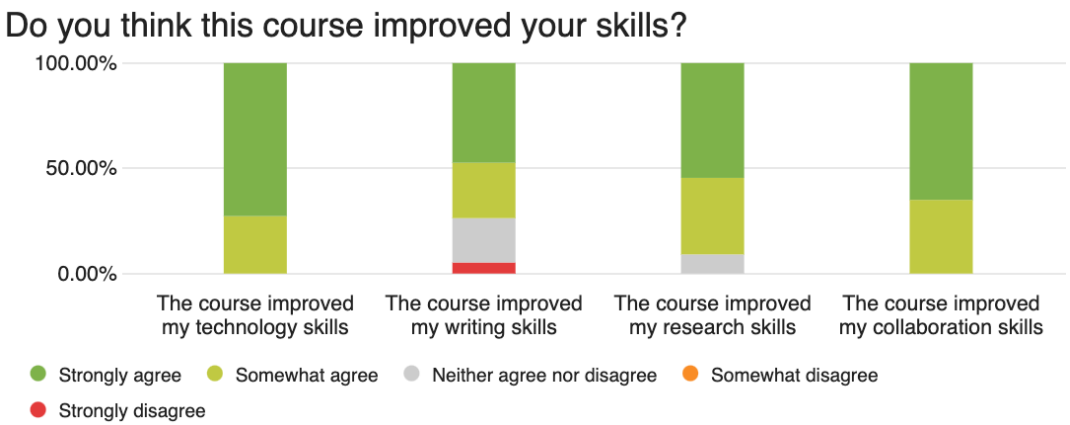
11	Final (Peer) Review	Reviewers provide feedback, author teams have chance to make final revisions. Teachers conduct plagiarism check and share results with students.	Hypothesis Plagiarism checker Grammar.ly	Final edit notes for each chapter
12-13	Publication & Celebration	Each author team presents on their chapter content and learning outcomes. This may take two sessions, depending on group size.	Presentation tools, recording	Presentation recordings, reflection.

Evaluation Results

After the course was completed, we distributed a survey with 13 questions that were a mix of nominal, Likert-scale, and open-ended questions. We were able to achieve a 100% response rate. The complete evaluation results are available for review and analysis: https://go.unc.edu/strongschools-eval

The results indicate that students found the course both challenging and highly effective. All respondents recommended offering the course again to future cohorts. Only five of the 22 students had prior experience with open pedagogy, and many of the technology tools, including the e-book platform Pressbooks, were unfamiliar to students.

Figure 3
Student Perception of Improved Skills



The responses regarding the course "Strong Schools" were overwhelmingly positive. Participants expressed that the course provided a great learning experience and was very helpful in their educational and professional development. They appreciated the opportunity to write a chapter, review others' chapters, and learn about open educational resources and technology in education. Some mentioned specific tools like Zotero and Genially that they found valuable. While there were some mentions of challenges, such as timing and the course format, overall, participants found the course productive, innovative, and impressive. They emphasized the new knowledge and skills they gained and considered it one of their best learning experiences (cf. fig. 3).

The potential downsides of open pedagogy mentioned by participants include:

1. Technology issues: Some participants mentioned that technology may not always work properly, leading to challenges in utilizing open pedagogy resources or platforms like Pressbook.
2. Privacy concerns: One participant highlighted that open pedagogy might raise privacy issues for students.
3. Accessibility and affordability: Participants noted that open pedagogy might be inaccessible to certain individuals or communities due to factors such as limited Internet access, high internet costs, lack of knowledge in using tools and platforms, and limited availability of resources.
4. Quality control and reliability: Open pedagogy may face challenges in maintaining quality control and ensuring the reliability of resources. Participants mentioned the potential difficulty in finding updated and credible resources and the need for dedicated and generous contributors to the platform.

5. Potential misdirection: In some cases, open pedagogy may veer off in a direction that may not align with the intended learning outcomes or may not be beneficial for the class.
6. Student preparedness: Participants noted that if students are not adequately prepared or guided on how to collect data, research topics, and connect them to subtopics, it may hinder the effectiveness of open pedagogy.
7. Technical errors and Internet problems: Some participants personally experienced issues with technology and Internet connectivity while engaging in open pedagogy.

It's worth noting that some participants did not mention any downsides or had a generally positive perspective on open pedagogy (cf. figure 4).

Figure 4
Effectiveness of Open Pedagogy

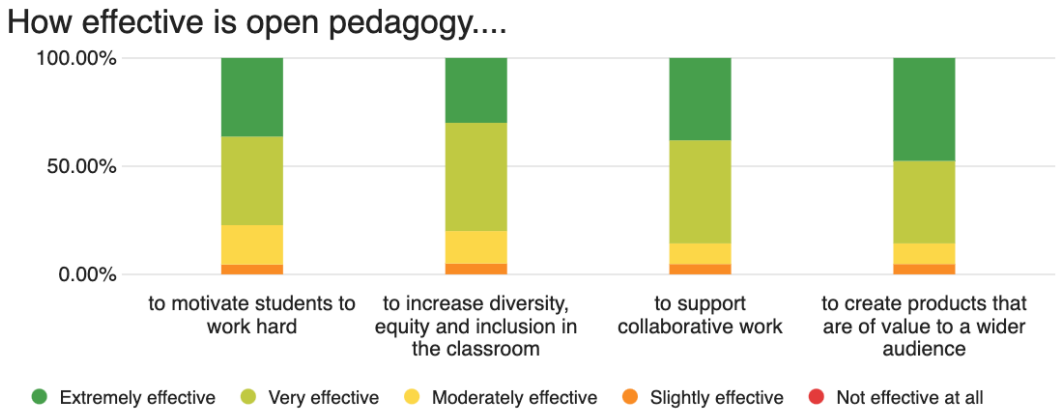
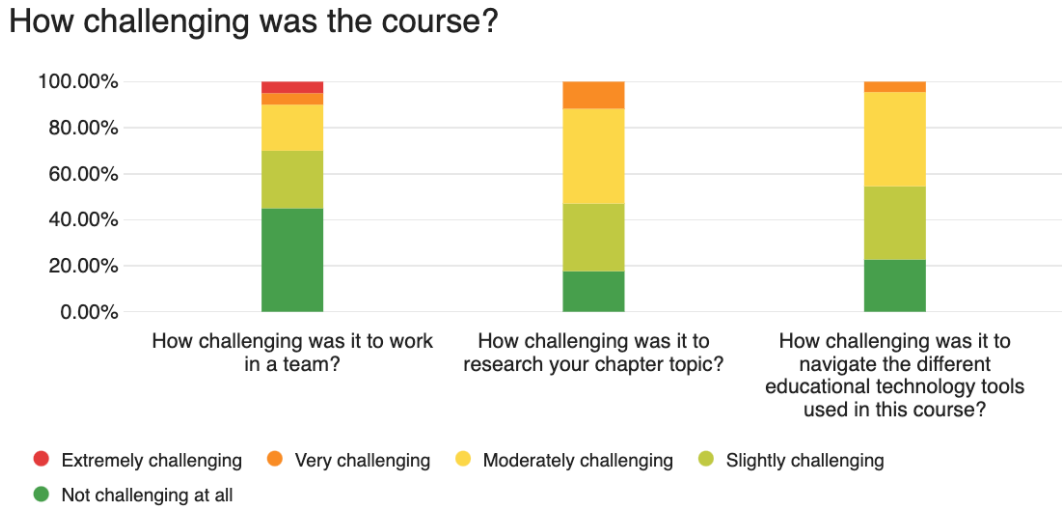


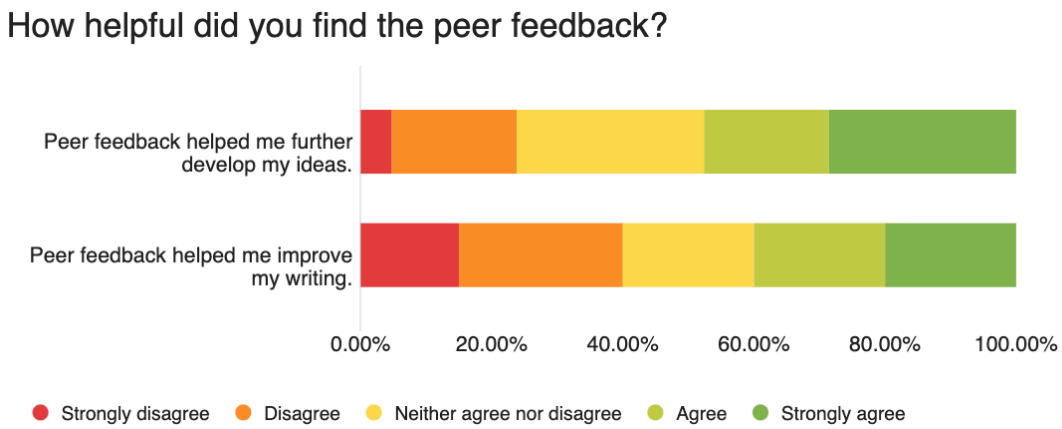
Figure 6
Course Challenges



Participants expressed various aspects of the course that they liked best. Some mentioned the opportunity to write a book chapter, become familiar with platforms like Pressbook, and discover new websites for paraphrasing, scholarly research, and badge creation. They valued the hands-on opportunity to publish a chapter and gain research experience. Participants also appreciated the variety of technology applications and tools, along with engaging with different educational platforms and websites. One participant suggested introducing more tools for future cohorts. Group work and collaboration were mentioned positively, along with the insights gained from guest speakers. The idea of providing free, high-quality study resources in a short time and contributing to helping others build strong schools was regarded as a highlight.

The responses to the questions about the teaching fellow's and instructor's support offer useful suggestions for improvement. Overall, participants expressed gratitude for the support, coordination, and guidance the teaching fellow and instructor provided throughout the course. Some participants suggested that the fellow should work more with students to utilize new technological practices and schedule personal meetings. Several students suggested more feedback during the writing process and the inclusion of a writing rubric at the beginning of the course for clearer grading criteria. Another pointer for improvement is the rating of peer feedback. Students' responses to the helpfulness of peer feedback were mixed, suggesting that this is an area where students need more support (cf. figure 5).

Figure 5
Perception of Peer Feedback



Observations from the Class and Students' Feedback:

From the teaching fellow's perspective, who was present on the ground and co-facilitated the class activities, students found the concept of writing a collaborative book and publishing it on an e-book platform very intriguing. Since the concept was completely new to them, at the very beginning, they had minor difficulties catching up with the gradual process and progress in their chapters. Nevertheless, in each session, students were enthusiastic about learning new tools and techniques and incorporating this knowledge into their book chapters. Their chapters with interactive infographics, podcasts and other multimedia contents reflect their successful takeaway from the class activities and guest lecture sessions. Some of the students also stated that they knew how to write an argumentative essay, an analytical paper, or a research paper, but that this was the first time they learned how to develop the contents of a specific book chapter by using a very effective step-by-step process. They considered this a very significant skill and later referred to their chapters as writing samples while submitting their applications for academic and professional opportunities. Despite being content with the course materials and the overall structure of the course, due to the fact that the course was heavily based on technology, it was observed that some of them had trouble accessing the tools during class exercises. A weak Internet connection and a lack of technical knowledge were issues to consider when working on their assignments.

Discussion

While adopting open-access material and co-creating learning material should not be seen as a golden ticket to student success, in our experience, it was an extremely empowering and gratifying process for the student writing teams. As Goode et al. (2021) pointed out, based on survey data at their institution, the readiness to access and use textbooks varies across disciplines and is interconnected with students' perceptions of usefulness. In our case, the graduate students needed a strong writing sample to apply for future learning and work opportunities, which made them intrinsically motivated to produce high-quality open-access work. In addition, the class enjoyed connecting with guest speakers, and they were able to present their work to an international audience on the podcast 'Silver Lining for Learning' (Bonk, 2023).

According to the Technological Pedagogical Content Knowledge Framework (TPACK), for teachers to effectively integrate technology into their teaching, the three components of content knowledge, pedagogical knowledge, and technological knowledge need to productively intersect (Mishra & Koehler, 2006). The evaluation results indicate that

the participants could integrate all three aspects within the course, making the course a promising example for other teacher education programs.

Based on a meta-analysis of literature reviews, Sousa, Pedro & Santos (2023) call for more awareness of the technical openness and tools that might contribute to fostering users' engagement with OER, helping them to act as producers and contributors rather than mere passive receivers. This aligns with our experience that the value of open educational opportunities lies not merely in the access and reception, but in the production and participation by students. Authoring tools such as Pressbooks can foster the student-led creation and proliferation of OER.

Werth & William (2021) explored the experience of instructors during their first and second courses when facilitating OER-enabled pedagogy. By the second iteration, the instructors interviewed recognized an evolution in their view of teaching generally as well as OER-enabled pedagogy more specifically. This growth increased the quality of interaction with students. We are currently facilitating another round of the course, and have identified room for improvement. Through better direct instruction on effective feedback and practice opportunities, and a dedicated writers' workshop session, we hope to enhance the quality of peer feedback and offer more care and support. The student-led creation of rubrics should happen earlier in the semester to increase transparency, and reduce the stress and competition around assessment. In a seminal article Boud, Cohen & Sampson (1999) warned that conventional assessment methods can inadvertently undermine the principles of peer learning, leading students to reject collaborative learning altogether. When assessments convey the notion that only individual accomplishments matter, this can foster counterproductive competition, both within and between groups.

As a practical note on technology choice, educators may want to consider alternatives to Pressbooks (e.g., EdTechBooks), or seek opportunities to collaborate with campus-wide or regional licenses for the Pressbooks platform. Pressbooks currently charges $400 per year for an individual instructor to create the book with collaboration features. It is important to note that this is a one-time expense: Lifetime-hosting of the open-access textbook is offered for free on Pressbooks after an evaluation of editorial quality, and thus student-authored book 'Strong Schools' has a continuous, stable web presence.

Conclusion

Writing is a transformative learning activity. It allows learners to organize their thoughts, communicate effectively, receive feedback from others, correct misconceptions, improve and clarify their understanding, and, as a result, create an artifact that has meaning and value for themselves and others. In their writing, students can draw from a wide variety of sources in OER repositories. The case study demonstrated what students can achieve when instructors allow them to use their creativity and match it with academic rigor. It aligns with the observation by Fung (2010) that successful collaboration depends not only on the learner's language skills but also on the right attitude and motivation to succeed in the group. Based on survey data, Marshall (2023) described positive attitudes of faculty towards the potential of OER as a mechanism for student collaboration. This case study adds to the growing body of evidence for the value of open pedagogy and non-disposable, meaningful assignments.

Bates describes evaluation and innovation as key fundamentals of the teaching and learning process: '*assessing what has been done, and then looking at ways to improve on it*' (Bates, 2022). Our goal for this article is to better understand and improve open educational practices to enhance students' learning experiences. The evaluation data for this course offers credible and reliable insights into student learning in the specific context of this course and organization. While single case studies offer valuable insights into specific educational innovations and the complexities of teaching and learning processes, their limitations in generalizability necessitate careful consideration when applying the findings to other contexts.

References

Adelman, C. (1993). Kurt Lewin and the Origins of Action Research. Educational Action Research: Connecting Research and Practice for Professionals and Communities 1 (1): 7–24. https://doi.org/10.1080/0965079930010102

Algers, A. (2020). Open textbooks: A balance between empowerment and disruption. Technology, Knowledge and Learning, 25(3), 569-584.

Ashman, M. (2023). Faculty and Student Perceptions of Open Pedagogy: A Case Study From British Columbia, Canada. The Open/Technology in Education, Society, and Scholarship Association Journal, 3(2), 1–29. https://doi.org/10.18357/otessaj.2023.3.2.40

Bates, A. W. (2022). Teaching in a digital age: Guidelines for designing teaching and learning. 3rd edition, BCcampus. https://pressbooks.bccampus.ca/teachinginadigitalagev3m/

Bonk, C. J. (2009). The world is open: How web technology is revolutionizing education (pp. 3371-3380). Association for the Advancement of Computing in Education (AACE).

Bonk, C. (2023). Bans Don't Work in an Open World: Afghan Women Find Educational Opportunities in Bangladesh. Silver Lining for Learning Podcast, Episode 140. https://silverliningforlearning.org/episode-140-bans-dont-work-in-an-open-world-afghan-women-find-educational-opportunities-in-bangladesh/

Boud, D., Cohen, R., & Sampson, J. (1999). Peer learning and assessment. Assessment & evaluation in higher education, 24(4), 413-426.

Carr, W., & S. Kemmis (2003). Becoming Critical: Education Knowledge and Action Research. London: Routledge. https://doi.org/10.4324/9780203496626

Charles, E. (2019). Decolonizing the curriculum. Insights, 32(1), 24.

Felten, P. (2013). Principles of good practice in SoTL. Teaching and learning inquiry, 1(1), 121-125.

Ferguson, R., Barzilai, S., Ben-Zvi, D., Chinn, C.A., Herodotou, C., Hod, Y., Kali, Y., Kukulska-Hulme, A., Kupermintz, H., McAndrew, P., Rienties, B., Sagy, O., Scanlon, E., Sharples, M., Weller, M., & Whitelock, D. (2017). Innovating Pedagogy 2017: Open University Innovation Report 6. Milton Keynes: The Open University, UK.

Fung, Y. M. (2010). Collaborative writing features. RELC journal, 41(1), 18-30.

Gibson, D., Ostashewski, N., Flintoff, K., Grant, S., & Knight, E. (2015). Digital Badges in Education. Education and Information Technologies, 20(2), 403–410.

Goode, J. R., Morris, K. K., Smith, B., & Tweddle, J. C. (2021). Why Aren't My Students Reading: Faculty & Student Research Unveiling the Hidden Curriculum of Course Material Usage. International Journal for the Scholarship of Teaching and Learning, 15(1), 2.

Harvey, M., & Jones, S. (2021). Enabling leadership capacity for higher education scholarship in learning and teaching (SOTL) through action research. Educational Action Research, 29(2), 173-190.

Hilton, J., Wiley, D., Chaffee, R., Darrow, J., Guilmett, J., Harper, S., & Hilton, B. (2019). Student perceptions of open pedagogy: An exploratory study. Open Praxis, 11(3), 275-288.

Lin, H. (2019). Teaching and learning without a textbook: Undergraduate student perceptions of open educational resources. International Review of Research in Open and Distributed Learning 20(3), 1–18.

Marshall, S. L. (2023). Closing the Traditional Textbook to Make Room for Open Material: A Quantitative Analysis of Student and Faculty Perceptions on the Implementation of Open Educational Resources in Higher Education (Doctoral dissertation, Marymount University).

Maultsaid, D., & Harrison, M. (2023). Can Open Pedagogy Encourage Care? Student Perspectives. The International Review of Research in Open and Distributed Learning, 24(3), 77–98.

McLure, M., & Sinkinson, C. (2020). Caring for students in postsecondary open educational resource (OER) and open education initiatives: inviting student participation and voice. Reference Services Review, 48(3), 473-487.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers college record, 108(6), 1017-1054.

Paskevicius, M., & Irvine, V. (2019). Practicalities of implementing open pedagogy in higher education. Smart Learning Environments, 6(1), 1-20.

Ruland Staines, H. (2018). Digital open annotation with hypothesis: Supplying the missing capability of the web. Journal of Scholarly Publishing, 49(3), 345-365.

Sousa, L., Pedro, L., & Santos, C. (2023). A Systematic Review of Systematic Reviews on Open Educational Resources: An Analysis of the Legal and Technical Openness. The International Review of Research in Open and Distributed Learning, 24(3), 18–33.

Trust, T., Maloy, R. W., & Edwards, S. (2022). College student engagement in OER design projects: Impacts on attitudes, motivation, and learning. Active Learning in Higher Education

Wang, S., & Wang, H. (2017). Adoption of open educational resources (OER) textbook for an introductory information systems course. Open Learning: The Journal of Open, Distance and e-Learning, 32(3), 224-235.

Werth, E., &Williams, K. (2021). Learning to be open: Instructor growth through open pedagogy. The Journal of Open, Distance, and E-learning.

Wiley, D., Bliss, T. J., & McEwen, M. (2014). Open Educational Resources: A Review of the Literature. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), Handbook of Research on Educational Communications and Technology (pp. 781–789). Springer.

Wiley, D., & Hilton Iii, J. L. H. (2018). Defining OER-Enabled Pedagogy. The International Review of Research in Open and Distributed Learning, 19(4). https://doi.org/10.19173/irrodl.v19i4.3601