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# RESEARCH REVIEW

2022



GO-GN

# Research Review 2022

v1.0



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## Introduction

This report summarises some state-of-the-art research relevant to open educational resources (OER) and open educational practices (OEP) that was published recently. The reviews of these articles were written by doctoral and post-doctoral researchers who work in relevant fields and are members of the Global OER Graduate Network (GO-GN).

These reviews focus on the relevance of the papers for educational technologists, instructional designers, and educators working in higher education institutions with a particular focus on research into open education. GO-GN is a network of PhD candidates around the world whose research projects include a focus on open education. These doctoral researchers are at the core of the network; around them, over two hundred experts, supervisors, mentors and interested parties connect to form a community of practice that:

- Raises the profile of research into open education
- Offers support for those conducting PhD research in this area
- Develops openness as a process of research

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## Accessibility

### Accessibility Challenges in OER and MOOC: MLR Analysis Considering the Pandemic Years

Ingavélez-Guerra, P., Robles-Bykbaev, V., Teixeira, A., Otón-Tortosa, S., & Hilera, J. R. (2022). Accessibility Challenges in OER and MOOC: MLR Analysis Considering the Pandemic Years. *Sustainability*, 14(6), 3340. MDPI AG.

<http://dx.doi.org/10.3390/su14063340>

Reviewed by Paco Iniesto (The Open University, UK)

In this article, the authors present a review of the state of the art in creating and managing learning resources and accessible OERs and MOOCs. As they acknowledge, this is a topic that cannot only consider academic literature but requires a combination of contextual information, scientific results, and practical experiences. The innovative aspect of this article is that it presents a review of accessibility models for OERs and MOOCs including grey literature following the Multivocal Literature Review (MLR) format. They aim to address two different research objectives (1) provide an overview of the status of initiatives in accessible learning resources and MOOCs and (2) identify good accessibility practices for the creation and accessible management of learning resources and MOOCs.

One of the interesting aspects of the paper is the detailed definition of learning objects and their seed or intersection with the OER notion. Authors define MOOCs under the umbrella of OERs within the Open Course Ware (OCW) definition including copyright and learning characteristics. Another relevant aspect is the acknowledgement that accessibility is transversal in all those components. I may disagree with the definition of accessibility following a medical model although authors recognise it cannot only be focused on technological aspects but pedagogical ones as well. To include both academic and grey literature authors create detailed assessment criteria for study quality which is acknowledged as a potential limitation to including some resources. The final number of studies is quite substantial and includes 51 publications.

In this review, through four research questions, the authors claim that it is possible to apply accessibility review methodologies with transversal actions in the creation and management of learning resources and MOOCs. As the authors suggest, the application of processes that guide accessibility in virtual education responds to subjective criteria that depend on local or institutional models of evaluation in virtual education and general guidelines. Indeed, the review shows a lack of



measurement of the impact on the applicability of accessibility in MOOCS and OERs.

Three key aspects are described:

1. There is a scarcity of information and indicators regarding the evaluation of the accessibility of virtual educational resources and courses. Studies in the review tend to focus more on design recommendations than on evaluating the effectiveness of their implementation and improvement process.
2. The use of accessibility standards is subjective and responds to evaluative models that, although they consider accessibility as an evaluative metric, it is inconsistent to reach a common implementation process.
3. There is a lack of references in the review that include a significant sample of disabled students.

The authors recognise an important need in future research is to establish the generation of guides, tools, and techniques that promote their development and strengthen their evaluation and impact. Based on this extensive and good-quality literature review, it is established that there is no accessibility evaluation model for OER and MOOCs; it is considered that it is necessary to establish accessibility guidelines to assist in the elimination of barriers, and the implementation of guidelines can favour the creation of accessible OER to generate a culture of inclusive design.

## Satisfaction of disability students through OERs in the inclusive education setting of Alagappa University and Bharathidasan University

M.Muniyasamy, Dr.R. Jeyshankar, & K.Sathish Kumar. (2022). Satisfaction of disability students through OERs in the inclusive education setting of Alagappa University and Bharathidasan University. *International Research Journal of Education and Technology*, 04(03), 20–25. <https://doi.org/10.5281/zenodo.6366883>

Reviewed by Paco Iniesto (The Open University, UK)

The authors of this study aim to identify how satisfied disabled students were using OERs at Alagappa University and Bharathidasan University in Tamil India. In this case, the authors define accessibility as the means that the learning experience, including its learning material and teaching process, are changed according to

students' requirements to have equitable learning experiences, using, therefore, a centred-based approach.

In the paper there exists the perspective that OERs are created by educators who are not necessarily ICT specialists and their need to commit to accessibility requirements. In that sense, the Open University in the United Kingdom is used as an example of an accessible OER repository through the Open Learn platform. Authors, as well, review in a quite minimalistic and descriptive way 10 literature reviews and studies in the area.

To identify the satisfaction of disabled students in their institutions, the authors surveyed 54 students among both institutions, mostly reporting physical disabilities and a few visual and hearing impairments. For the analysis, the approach was to use a descriptive approach. Unfortunately, neither the OERs under review nor the questionnaire is included in the paper (or any type of constructs). Moreover, the scale used is missing although a Likert of 5 values can be deducted.

Responses with better acceptance were "Free online teaching-learning method through OER" and "Disability students can use OER anywhere, anyplace, and anytime." With worse results "OER is suitable for disability students", an aspect that raises questions about the consistency of the methodology. These results presented are derived from research in face-to-face teaching, authors claim those results are as relevant and applicable to learning, teaching, and curriculum design in distance learning and virtual contexts, but that claim is not demonstrated and is difficult to believe when reflecting on the varied needs of students in both environments.

The authors acknowledge the limitations of the sample with a limited number of participants with a reduced number of close-ended questions. At the same time point out the need to run similar studies at primary and secondary levels in the Tamil Indian context to raise awareness of the need for more inclusive education. Finally, the authors conclude that training on inclusive education and disability can change people's perceptions of what disability is and the different realities university students face. While in general, this study indicates an awareness of determination to produce accessible OERs, it shows very preliminary, exploratory and limited research in both methodology and sample with respect to generalisable conclusions.

## Community Conversation: OER for Diversity, Equity and Inclusion in STEM Classrooms

Donovan, S. S. (2022). Community Conversation: OER for Diversity, Equity and Inclusion in STEM Classrooms. BioQUEST Curriculum Consortium, QUBES Educational Resources. doi:10.25334/GKZA-DA83  
<https://qubeshub.org/publications/2886/1>

Reviewed by Emily Helton (West Virginia University, USA)

This is a 20-minute video by BioQuest highlighting the work of four authors around the theme of DEI in STEM classrooms. It can be accessed on YouTube via:  
<https://www.youtube.com/watch?v=oePaWuFCPKo>.

Ben Negrete talks about the effect of dead zones on fish:  
<https://qubeshub.org/publications/2492/1>. This is a fifty-minute lesson designed for undergraduates, who graph data, make interpretations, and hear from the scientist who collected that data.

Hayley Orndorf talks about Universal Design for Learning:  
[https://qubeshub.org/community/groups/opening\\_the\\_pathway/collections/universal-design-for-learning-resources](https://qubeshub.org/community/groups/opening_the_pathway/collections/universal-design-for-learning-resources) This is part of a collection that links to resources provided by CAST <http://udloncampus.cast.org/home>

Mary Mulcahy talks about redlining's impact on health as an example of integrating social justice into STEM classrooms: <https://qubeshub.org/publications/2347/3>. This is an hour-long lesson intended for high school and undergraduate students, who investigate connections between historical redlining (denial of housing based on race) data and health outcomes.

Yarid Mera connects social justice to biology through teaching about cancer:  
<https://qubeshub.org/community/groups/coursesource/publications?id=2775&v=1>. This is a fifty-minute lesson intended for introductory or mid-level molecular biology undergraduates and uses a process-oriented guided inquiry learning (POGIL) approach.

Each author speaks for a few minutes about their resource, their rationale for creating it, and how it could be applied in the classroom. It's a succinct introduction to these resources and researchers, and has the feel of a virtual "brown bag" lunch meeting. The video concludes with a tutorial on how to search [QUBES](#) using tags.

## Open Educational Resources & Accessibility: A Wholistic View

Wiegand, Stephanie (2022). Open Educational Resources & Accessibility: A Wholistic View. *Teaching, Learning & Assessment*, 74.

<https://digscholarship.unco.edu/tla/74>

Reviewed by Glenda Cox (University of Cape Town, South Africa)

This presentation by Stephanie Wiegand (who is a textbook affordability librarian) will be useful for new academics starting to develop teaching resources. It will also be a good resource for academics who know very little about OER, Open Textbooks and accessibility. The emphasis is on how to integrate OER into a course for accessibility and affordability. Wiegand has many years of experience that she draws on for this presentation.

Wiegand discusses definitions of OER and open access. She talks about accessibility principles including Universal Design for Learning. There is a useful accessibility checklist from Boise State that is a suggested starting point when academics think about accessibility. She lightly touches on issues of inclusion.

The presentation is possibly a little long, and it would be useful to integrate these slides into a workshop setting with activities. It is contextually relevant to an American audience and especially institutions that use Canvas as their learning management system.

## Open Educational Practices

### Revisioning the potential of Freire's principles of assessment: Influences on the art of assessment in open and online learning through blogging

DeWaard, H. & Roberts, V. (2021) Revisioning the potential of Freire's principles of assessment: Influences on the art of assessment in open and online learning through blogging. *Distance Education*, 42:2, 310-326.

<https://doi.org/10.1080/01587919.2021.1910494>

Reviewed by Ada Czerwonogora (Universidad de la República, Uruguay)

The article presents 'a theoretical and conceptual exploration of Freire's (1970/2018) writings as potential principles of assessment in critical pedagogy contexts within the practical application of student blogs in online and open assessment practice.'

The authors employ Patton's (2017) principles of critical pedagogy in evaluation as a framework to guide the connection to blogging and open educational practices (OEP). The novelty of the paper is to include this view of OEP as a possible approach that educators and learning designers could consider to integrate blogging to course design. For this purpose, an open learning design intervention (OLDI) model is proposed. It is noteworthy that the model has possibilities of application not only in faculties of education, but also in other courses interested in generating a change in assessment practices. As the authors point out, higher education has advanced in the adoption of authentic assessment practices, but pivots to online learning resulting from responses to the COVID-19 pandemic have exacerbated the binary and evaluative perspectives. This theory-to-practice exploration is a way to promote assessment design beyond traditional forms, and might be helpful in particular for those new to designing open and online assessment strategies.

The article has a sequential structure, with fluid writing that addresses step by step the different aspects that inform the OLDI model, which is presented in the final section as 'a path forward into the open'.

After the introduction, the theoretical framework is described. It begins with OEP: in online learning contexts, blogging is positioned as an open practice that provides the opportunity for meaningful and authentic reflection. Then, evaluation is conceptualised and distinguished from formative and authentic assessment, and feedback. These concepts are accompanied by abundant, relevant and up-to-date literature, linking with Freire's principles focused from the perspective of open

education and the blogging experience developed by the authors. Key elements of an authentic, formative assessment practice are also abstracted in one of the figures of the paper.

The critical review about Patton's principles through an OEP lens is remarkable. It results in a reduction to five core principles of critical assessment: using evaluative thinking to cultivate critical consciousness; learning resides in communities, not just individuals; critical pedagogy must be dialogical and interactive; assessment should integrate reflection and action, thinking, and emotion; and critical consciousness is co-intentional, focusing on process and product. Each principle is related to the blogging practice developed, linking theoretical aspects to the practice, describing different tasks and possibilities for students to develop, according to learning design provided by course instructors.

In the final section, the authors characterise the OLDI model to support instructors to meet these five principles, defining the different model stages, based on previous research (Roberts, 2019). The first stage of the OLDI model is the relationship-building phase, where students engage and interact with each other. The second stage focuses on developing digital fluencies with the blogging platform, engaging students in developing their critical consciousness. The third stage is dialogical: the blogging design enables different intentional interactions, collaborations and connections with other nodes of learning. The fourth stage involves the development of learning networks that extend outward from the blog hub and individual student blog sites.

To summarise, it is worth highlighting the application possibilities of this intervention design in different contexts, and to especially point out the relevance of revisiting Freire's principles from the perspective of open education, to confirm they have future potential for assessment practices.

## Wikipedia as Open Educational Practice: Experiential Learning, Critical Information Literacy, and Social Justice

McDowell, Z. J., & Vetter, M. A. (2022). Wikipedia as Open Educational Practice: Experiential Learning, Critical Information Literacy, and Social Justice. *Social Media + Society*. <https://doi.org/10.1177/20563051221078224>

Reviewed by Beck Pitt (The Open University, UK)

This paper examines the process of editing and creating Wikipedia articles and whether it fulfils the Association of College and Research Libraries' (ACRL) Framework for Information Literacy in Higher Education criteria. The paper discusses the flexibility and range of activities that Wikipedia can potentially support within a range of contexts and how encouraging use of Wikipedia can address the encyclopaedia's long-standing issues of diversity and representation.

This paper opens with an overview of research into Wikipedia to date. In tandem with the wider acceptance, and changing perception, of Wikipedia within academic contexts is the increased use of Wikipedia as a platform where students, and the wider community, can actively engage and contribute to. As discussed, this activity can specifically focus on addressing the dominant bias of Wikipedia articles and to redress the balance so that currently marginalised groups and topics are better represented. Whilst there is a growing body of research on different facets of Wikipedia use, McDowell & Vetter position this paper "...on the intersections..." of a small body of research into social justice, OEP, critical literacy and Wikipedia as an open resource. The authors have extensive experience of using Wikipedia for their own teaching practices and publishing on different facets of Wikipedia use. Building on earlier research, this paper revisits educator and learner data from 2016 to explore further and extend earlier analyses.

Wikipedia is an example of a unique, very large, successful OER which has an open ecosystem of practices and community built up around it. The ACRL Information Literacy Framework has "six frames" which McDowell & Vetter use to illustrate how the process of editing a Wikipedia article fulfils the framework criteria and therefore can be an extremely useful way to increase valuable information literacy skills and enhance learner skills as they navigate and contribute to the platform. The paper also shows that both within formal and informal settings, Wikipedia editing can potentially combat wider societal issues such as fake news and representation.

As the authors show, understanding the process of Wikipedia editing, and how and what can be contributed, is critical. Throughout this paper the authors carefully differentiate and highlight the similarities between good academic practice (e.g. avoiding plagiarism and being aware of copyright) and how Wikipedia editing can

potentially enhance this. For example, the independence and openness of the process of contributing content involves more than just satisfying one course educator but a range of independent checks and balances. As the authors note, this places additional responsibilities onto learners. The process of editing gives credibility to Wikipedia and active engagement with the platform gives users the opportunity to understand what is involved in creating an article and how this is an active, "iterative" process involving engagement and discussion with a wider community. The ecosystem of Wikipedia encourages openness therefore encourages critical reflection and engagement.

As acknowledged by the authors, whilst Wikipedia editing may fulfil the ACRL framework criteria, it is not a panacea with regard to increasing information literacy or addressing social justice issues. As the authors note, Wikipedia is not a perfect community and its policies (such as the 'neutrality' policy) can be controversial. As Wikipedia is an OER there is the potential for anyone to converse and engage around these issues. However, as is well known, Wikipedia has historically suffered from a lack of diversity in its editorship. As McDowell and Vetter discuss there is potential for use of Wikipedia to address this. Within the USA context, even one class engaging in Wikipedia editing "...provides an effective and rapid antidote to Wikipedia's lack of diversity..." both in relation to the demographic of American undergraduates but also in relation to the interests and focus of each editor's activities. This is also true elsewhere in the world and, as the authors note, potentially applicable to the general public.

The authors conclude with some useful recommendations which reflect the community of care needed to introduce and sustain Wikipedia editing to new and much needed users from diverse backgrounds.

This paper adds to a growing range of research which shows how OER is not just being used to support social justice issues such as access but that the OEP engendered by this type of resource can also be used to develop scholarship in different ways. It highlights the pedagogical importance of engagement with OER such as Wikipedia to do so. Using the ACRL framework to map Wikipedia editing practices is a useful way to showcase the potential of OER and OEP, although the encyclopaedia format is very specific. This paper also highlights the potential for OER ecosystems and platform architecture to do so in a sustainable and community based way.



## College student engagement in OER design projects: Impacts on attitudes, motivation, and learning

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*. 340. <https://doi.org/10.1177/14697874221081454> / [https://scholarworks.umass.edu/education\\_faculty\\_pubs/340/](https://scholarworks.umass.edu/education_faculty_pubs/340/)

Reviewed by Helen DeWaard (Lakehead University, Canada)

This research explores the creation of open educational resources (OER) by students and faculty in six different higher education course contexts, to learn about and complete assignments applying a problem-based learning (PBL) approach. The authors claim that student engagement with open project development positively impacts learning, that OER production can prepare students for 21st century success, and the use of OER assignments can improve awareness of OER and expand pedagogical knowledge for current and future educators. The authors contend that this exploratory, qualitative research into OER production “not only benefits students in higher education but also breaks down the walls of the classroom to support education on a global scale” (p. 14), and thus establishes a starting point for deeper understanding of PBL as part of an open educational practice (OEP) in higher education.

The description of the six courses is, in and of themselves, worthy of further exploration as examples of how course design can include the production of OER with and by students. Since these are OER productions they are available for use and remix by educators around the world. The PBL designs include a digital media course, the creation of an online tools site, wiki work for history and social studies, creating videos to showcase campus resources, an online course for the development of a professional learning network, and an e-book focusing on digital tools and apps for teaching with technology. While the tasks are focused on the field of education, these types of assignments could be applied to a variety of courses in other fields of study.

In this study, Trust et al., analyse post-course surveys from between 2015 to 2019 for six courses where student assignments and tasks were designed as OER. While the exact questions are not included, the survey question design is described and the survey results are shared in chart and graph formats. As reported by Trust et al. (2022), it is reasonable that the survey design changed to include additional responses about attitude and motivation, since the survey was used over an extended period of time. The survey results were analysed using descriptive

statistics and thematic analysis to identify codes and patterns in the data in order to respond to the three research questions relating to attitude and motivation, skills developed, and what students felt they learned from the OER design project.

Interestingly, two of the survey questions were pre-populated with a list of commonly cited 21st century skills identified through analysis of content on websites and journal articles. While the full listing of these choices would have provided additional information, the top ten skills are identified in the tables and graphs. The differences found between each of the six courses provide some interesting observations for course design when students create OER. Noticing that multicultural awareness was significant in the wiki design project suggests that this option would be a good choice for a course where this specific skill is identified as a course objective. Noting that creativity was identified for the online tools site project could indicate that this type of OER design work is beneficial when a course objective focuses on student creativity as an outcome.

The argument presented by Trust et al. (2022) to design courses with student creation of OER is not new, and has been made by advocates of OER and OEP (Paskevicius & Irvine, 2019; Van Allen & Katz, 2020; Wiley, et al. 2017). What Trust et al., (2022) present is the student perspective and perceived impact of OER production on their learning. This well written and accessible offering adds much to current debates about OER and OEP in higher education. This research provides an example for educators and instructional designers looking to integrate OER and PBL approaches within their fields of study or geographic contexts. This research is especially relevant for open education research since it lays out a foundational inquiry examining the impact of OER production on student learning. Not only the survey and research results found within this study, but the examples of course designs involving OER production, are potentially beneficial to those new to the field of open education and student creation of OER.

Trust et al., (2022) conclude that “shifting students’ roles from consumers to curators and designers of OER can positively impact students’ motivation to learn, attitudes about learning, and development of valuable 21st-century skills that will prepare them for life, work and citizenship in an ever-changing future” (p. 14). The data presented in the graphs and charts, and explained in the discussion section, support the conclusions identified. Not only do the survey results show the potential impact of student design of OER, but the tracking of page views and project downloads, as well as the access by a global audience, indicates that the potential for student created OER can expand exponentially.

## A qualitative study to understand the perspectives of MOOC providers on accessibility

Iniesto, F., McAndrew, P., Minocha, S., & Coughlan, T. (2022). A qualitative study to understand the perspectives of MOOC providers on accessibility. *Australasian Journal of Educational Technology*, 87-101.

<https://ajet.org.au/index.php/AJET/article/view/6610>

Reviewed by Beck Pitt (The Open University, UK)

As universities report a growing number of learners declaring disabilities, an increasing number of learners with accessibility needs are also studying MOOC. How do MOOC creators and platforms accommodate different learner needs? Whilst understanding learners and their needs is critical to developing and supporting effective learning, there is little current research on how MOOCs currently support different learners. Moreover, as the authors of this paper note, the challenges faced by MOOC creators and platforms are not unique but of wider interest, particularly to those involved in open learning.

In this paper, Iniesto et al. (2022) reveals that compliance with legal requirements informs and shapes MOOC provider responses to accessibility, rather than a systematic understanding and response to learner needs. Through interviews with 26 representatives, in a range of roles and from a range of universities and platforms involved in the development and hosting of MOOC content (including FutureLearn, edX, Galileo University and Universidade Aberta) this paper explores the reasons behind this situation and makes a series of actionable recommendations for those involved in MOOC development and delivery.

As Iniesto et al (2022) reports, whilst MOOC are viewed positively by interviewees and there is awareness of reported benefits for learners who declare a disability, focusing on fulfilling on legal, platform and/or institutional requirements does not account for and centre learner needs. This highlights a need for better collaboration between those involved in the development and production of MOOC, to ensure that accessibility is considered at all stages of MOOC development. When information on learners is gathered, approaches are often inconsistent, incomplete and consequently lead to a limited understanding of learner accessibility requirements. To rectify this, platforms should develop effective ways of understanding learners and their needs, including surveys and the use of learning analytics. Course content should also reflect and be informed by different learner needs. The paper also includes a number of recommendations for platforms to support learners with different needs, including simplifying platform interfaces, improving navigation and assessment options, ensuring that learners without a

reliable internet connection can participate easily offline and providing transcriptions and other support for video and audio.

Of note is that the nature of the course itself (e.g. the “open” and “massive” aspects) were considered as important to supporting a variety of accessibility requirements by interviewees. This paper provides a clear steer and set of recommendations for MOOC creators and platforms to foreground accessibility and develop a more nuanced understanding of, and support for, different learner needs. Limitations to the research, such as MOOC provider representation and possible “self-serving bias” are noted.

## Assessment of trend and current pattern of open educational resources: A bibliometric analysis

Mishra, M., Kumar Dash, M., Sudarsan, D., Guimarães Santos, C. A., Mishra, S. K., Kar, D., Bhat, I. A., Panda, B. K., Sethy, M. and Marques da Silva, R. (2022). Assessment of trend and current pattern of open educational resources: A bibliometric analysis. *The Journal of Academic Librarianship*, Volume 48, Issue 3. <https://doi.org/10.1016/j.acalib.2022.102520>

Reviewed by Kathy Essmiller (Oklahoma State University, USA)

This purpose of this article is to provide an overview of OER as represented in “scientific literature” (p. 1) from 2002 to 2020, with the additional goal of providing a summary of “the growth structure of OER” (p. 1) in regards particularly to barriers and challenges to its creation and use. Mishra et al. applied bibliometric analysis to data available in the Scopus database responsive to keyword searches including open textbook, open online course, open courseware, open-source software and open social learning. Findings include identification of continuing challenges related to languages in which OER are published, inconsistent funding, quality/awareness, and lack of infrastructure.

## OER Implementation & Impact

### Online Course Development: Creating Robust Educational Experiences Online

Ballantyne, E. & Teaching and Learning Centre, Mount Saint Vincent University (2022) Online Course Development: Creating Robust Educational Experiences Online. <https://caul-cbua.pressbooks.pub/coursedev/>

Reviewed by Marjon Baas (Saxion University of Applied Sciences; ICLON Graduate School of Teaching, Leiden University, NL)

This open textbook is aimed at instructors who will be designing an online course in higher education. The textbook is organised in 10 chapters that focuses on: learners, inclusive pedagogical approaches, course goals, engagement, feedback, learning activities, assessment, content, organisation and balance, and additional support. But before you start with the first chapter, the pre-pages make it really clear that the author thought about relevant side-issues of this OER. She pays respect to the Indigenous custodians of Kijipuktuk (Halifax, Canada), illustrates how accessibility is integrated in the resource's design, and explains how others may use and adapt the open textbook. By doing this, it is already stressed that both the students' and instructors' needs are taken into account. These two themes are also interwoven within the entire open textbook. It starts with creating awareness that there is no such thing as 'one-size-fits-all' education and cultural responsive pedagogy must be part of course developments. It then continues with the different Backward Design aspects of an online course. What is really positive about this open textbook is that the pages are easy to read, there is a nice mix between reading, videos, and images, and there are short exercises that trigger instructors to think about their online course design.

Overall, this open textbook will be very useful for instructors across the globe to prepare them for online course development. It will be of special interest to novice teachers who do not have any experience with course design in general. It will prepare them on what to think about when designing an online course. After reading this book, an instructor will be ready to start designing the online course. That will not be an easy task, but by reading and engaging in this introductory work on online course design they will broaden their perspectives and knowledge on what to think about when designing such courses. A follow-up open textbook, or an extension of the current one, about how to manage a running online course would be of interest as well. Designing an online course and actually running this course online are two different skills, and I think especially novice teachers (but also

experienced 'traditional' teachers) might feel supported if the next step of executing an online course is portrayed as well.

## Encouraging impacts of an Open Education Resource Degree Initiative on college students' progress to degree

Griffiths, R., Mislevy, J. & Wang, S. (2022). Encouraging impacts of an Open Education Resource Degree Initiative on college students' progress to degree. *Higher Education* (2022). <https://doi.org/10.1007/s10734-022-00817-9>

Reviewed by Marjon Bass (Saxion University of Applied Sciences; ICLON Graduate School of Teaching, Leiden University, NL)

This well-written open access research study provides us with a better understanding about the impact of OER degree pathways on students' progress to a degree. The authors argue that prior studies have shown the positive effects of OER adoption on a course level, but the insights into the effect of OER degrees on student learning are still more limited. To investigate the longer-term effect of OER degree pathways, the authors designed a method that is robust and appropriate. Student-level data (e.g. demographics, prior academic achievement, and transcript data) and instructor-level data - included as predictors in the meta-analysis - on experiences regarding teaching with OER were collected within 11 community colleges. Yet, rolling out an OER degree initiative takes time and therefore the researchers were not able to examine students that were enrolled in a full OER degree. While they created three conditions to measure impact of OER on student learning (high, low, no dosage of OER courses), I agree with the stated limitations made by the authors that it would be interesting to explore the full results when students have finished an entire OER degree.

The analysis undertaken by the researchers is explained clearly and the results thereof are presented coherently in the results section. An interesting result is that in 6 of the 11 colleges, students enrolled in OER courses had actually taken more course credits than their peers who were enrolled in traditional courses. No significant effects were found for students taking OER courses leading to a positive impact on their cumulative GPA. However, some groups of students benefit more from OER degree programs than others. The one thing that was unclear when reading this section in the article, was the meaning of the term 'Pell students'. This study has taken place within the USA and this is probably a well-known term there, but lacks a clear introduction in the article for outsiders. Other than that, the results section is easy to read and well supported by figures including descriptive texts. An

important statement that the authors make in the results section is that the conditions and practices within each college could influence whether or not the outcomes regarding OER degree implementations are favourable for student learning. Future research of these authors could explore this in more detail. Additionally, I would especially recommend the authors to include a practical implication section in the article to connect the findings of their study with the practice of OER degree pathways which may support other higher education institutes, OER advocates, and instructors.

## The Journey to Open: A Practical Guide to OER Implementation

Roch, S. and Stracuzzi, A. (n.d.). *The Journey to Open: A Practical Guide to OER Implementation*. Fanshawe College Pressbooks.

<https://openlibrary-repo.ecampusontario.ca/xmlui/bitstream/handle/123456789/1053/JourneyToOpen-PDFPrint.pdf>

Reviewed by Lorena Sousa (Universidade de Aveiro, Portugal)

The Journey to Open presents the process regarding the development and implementation of an Open Educational Resource initiative at Fanshawe College, in Canada, to support faculty and students' teaching and learning. It is divided into three parts:

- Section I: Open at Fanshawe College
- Section II: Team Perspectives and Reflections
- Section III: OER Showcase

In the first section, the process related to the OER Design Studio establishment is presented, including the incubator, design, and adoption processes. On pages 3 and 4, it briefly presents data from a survey that was conducted during the Open Education Days events, but the results do not go deeper. It would be more interesting to have additional details about the questions and percentages regarding students' and faculties' answers. The whiteboard on page 6 is also interesting and a deeper discussion could have been provided, especially on how many people answered it, their background, and if the different colours mean something.

Still in section I, the creation process of the course is presented. The map on page 12 outlines the process and gives a good overview of the general steps. From page

14 to 19, the course is explained, but during the reading it becomes unclear whether the content is from the course or from the guide *The Journey to Open*. On page 20, the OER production framework is very well informed by a workflow, describing the main steps adopted by the creation of OER. Then, each step is explained on the next pages.

In section II, each member of the team reflects on the process of developing OER during this initiative at Fanshawe College. The data is very rich and relevant to open education research. It describes how the team's concept has changed along the way, the challenges they faced, and the benefits experienced in the process. A suggestion is to use the content analysis method to enrich even more these results.

In section III, the projects produced by the initiative are briefly introduced. More details could have been provided. Final considerations and conclusions of the practical guide are missing.

To sum up, the paper is well structured and presents relevant information to the area of open education. However, some data could have been better analysed and more details could have been explored in order to provide a better overview to the reader.

## Redesigning a Research Methods Course with Personalized, Interactive OER

Wynants, S. A. & Dennis, J (2022). Redesigning a Research Methods Course with Personalized, Interactive OER: A Case Study of Student Perceptions and Performance. *Journal of the Scholarship of Teaching and Learning*, 22(1).  
<https://doi.org/10.14434/josotl.v22i1.31706>

Reviewed by Glenda Cox (University of Cape Town, South Africa)

This research includes results of a survey and a science-based control group investigation of exam results to establish the student learning outcomes when open education resources are introduced into a course replacing a commercial textbook. The authors argue that the strength of OER is in its ability to be remixed and customised resulting in student's positive reactions as the material is more relatable and interactive.



The research takes place at a public institution in the US with a racially diverse student body.

A course was redesigned to include OER, and the chosen OER textbook was extended to include self-quiz items to build weekly online interactive sessions. Exam results were compared where a group of students used a commercial textbook and later with another group who used an OER. The same instructor taught both groups. This control group method is used in a lot of research. However, there are so many other student and context related variables that cannot be controlled that it is difficult to build a strong argument on the results. The results (as other studies have shown) indicate no significant difference.

The student perception findings are more interesting and useful as there is little research at present capturing a student view of OER. A survey that included open-ended questions provided feedback regarding student's positive experience and satisfaction. The research includes the survey questions and open-ended questions, and this can be useful for future comparative research at other institutions. This paper is clearly written, and the student quotes are a rich source of evidence of their experience in terms of highlights and challenges.

The authors discuss the importance of OER in creating personalised learning which recognises the diverse cultures of students. This localisation aspect together with student feedback and possible future co-creation are suggested as a way forward. The authors future research will investigate the pedagogical changes that academics experience while creating and teaching with OER.

## Open Pedagogy

### Critical data literacy in higher education: teaching and research for data ethics and justice

Atenas, J., Haveman, L., Kuhn, C. and Timmermann, C. (2022) Critical data literacy in higher education: teaching and research for data ethics and justice. In: *Data Cultures in Higher Education*. Springer. <http://oars.uos.ac.uk/2348/>

Reviewed by Kate Huth (Griffith University, Australia)

The authors of this chapter are quick to introduce the reader to the idea that the modern world of Higher Education contains a lot of data, furthermore that this data takes a wide variety of skills to both work with and understand. Their stated purpose is to address some questions about how ethics and the use of ethics as a research method can work on addressing bias in data, in the collection, analysis and interpretation of data, as well as in how it is used. They call for educators and researchers alike to explore the issues of data literacy by using research based activities from a social justice perspective.

Part of how they do this is by using a case study of a course run in Uruguay which was part of a larger study. However, most of the chapter tries to introduce a greater understanding of data, bias in data, data literacy, and ethics as a method of research.

The discussion of the case study itself is well written and easily comprehensible. The study was looking at a specific course operated online over 2 semesters. The course required students to reflect on the politics of data and intersection of different social dimensions (race, gender, ethnicity).

The project itself was designed using the research-based learning model. Those in the course had to critically define a problem related to data and propose a solution based on the content learned in the course. Positive feedback was received from participants based on content, resources, practical case studies, reflection activities and activities that could be taken to the classroom.

This section supported the arguments put forward by the authors and gave some insight into how different forms of OER can be used successfully in a variety of contexts.

The biggest and most consistent idea put forward by the authors is that data should not be considered to be benign. They are looking at data as a living thing – it is not static. Even as it is observed, it changes. Data is collected but then analysed, interpreted, and communicated. At each of these points, the authors show us, data is constructed.

There is a lot more information in the lead up to the case study, which is the basis of the research, however what was there left me looking for more. The information felt incomplete as several of the “big ticket” ideas were never fully explained.

The authors want readers to take a critical approach to data literacy. They want learners and educators to take into consideration questions of social justice and pluralistic values while using data to work towards the mitigation of pervasive social injustices. They want researchers to use ethics not as a guide but as a research method. All of these things they tell us.

What wasn't said, or wasn't articulated in a manner that I was able to understand, was what they meant by some of these things. The authors decry the concept of “commonsensical understandings” and yet they rely on them for key parts of their own message. The one key term that was used frequently but never defined, instead the authors rely on a common understanding, is social justice. Given that this concept forms the basis of their argument along with critical thinking (very well defined), and data ethics (very well defined) a definition of what the term means in this context would have supported their arguments.

## The why of open pedagogy: a value-first conceptualization for enhancing instructor praxis

Werth, E., Williams, K. (2022). The why of open pedagogy: a value-first conceptualization for enhancing instructor praxis. *Smart Learning Environments* 9, 10. <https://doi.org/10.1186/s40561-022-00191-0>

Reviewed by Emily Helton (West Virginia University, USA)

This article seeks to address the gap between theory and practice in open pedagogy by connecting unfamiliar instructors to open techniques that align with their existing values, namely: transparency, sharing, personalised learning, learner empowerment, deconstructing traditional power structures, and collaborative knowledge construction. They include a table and a graphic that shows how subject matter experts evaluated the presence of each of these values in four aspects of open pedagogy: open design, open content, open assessment, and OER-enabled

pedagogy (with the latter receiving high marks in all values). They named this the Values-First Framework (VFF). Their argument is that by starting with the motivation of a naive instructor, the VFF should make it easier to find entry points into open pedagogy.

In developing the values, the authors espouse a hermeneutical approach, citing the Stanford Encyclopedia of Philosophy (Zalta, 2022). Not being particularly familiar with hermeneutics, I would have appreciated a more thorough description, however the table they refer to (Table 1), includes a very helpful list of references and conceptual terms associated with each of their six values. In particular the conceptual terms could be useful in conducting literature searches.

Their data consist of an electronic survey collected from nine subject matter experts (SMEs). They selected 12 individuals who had published in peer-reviewed journals about open pedagogy, and all but three agreed to participate, representing the United States, Canada, South America, the UK, and the Middle East (p 13). They asked the SMEs to select which of the six values was evident in each of the four aspects of open pedagogy. None of the SMEs requested definitions for the four aspects. They report these results in a heat-map style table, where any value-aspect combination that received more than six votes is color coded. Values range from four to nine, with nine indicating agreement from all SMEs (occurring six times out of the 24 possibilities).

The language is clear throughout, and I find this to be a very accessible piece. Much of the literature review focuses on the lack of clear definitions or definitional consensus within the broad umbrella of how OER is used in educational settings, before settling on Nascimbeni and Burgos' (2016) Open Educator practices as the foundation for their work. There is a lengthy bibliography that includes much of the research on open pedagogy and related concepts.

Overall, I like the idea of a framework that would help educators interested in, but not yet implementing, open pedagogy connect with specific places to start. The final table in the piece (Table 4) gives a few citations for each of the four aspects as a jumping off point for educators to get started. Presumably, they would read the article, identify their values, then pursue those citations. I could see this being shared with colleagues who express interest in open pedagogy.

## Teaching German as a Foreign Language with Open Educational Resources (OER): Implementation in and Experiences from an Indonesian University

Wijayati, P. H., Kharis, M., Hidayat, E., Ardiyani, D. K., Ebner, M., & Schön, S. (2022). Teaching German as a Foreign Language with Open Educational Resources (OER): Implementation in and Experiences from an Indonesian University. *International Journal of Emerging Technologies in Learning (IJET)*, 17(04), pp. 225–238.  
<https://doi.org/10.3991/ijet.v17i04.23225>

Reviewed by Paula Cardoso (Instituto Politécnico de Leiria, Portugal)

This paper is an interesting effort to describe OER use in Indonesia, as there aren't many studies in this particular context, specifically when it comes to language learning. It provides a description of the implementation and use of OER in the context of German as Foreign Language in an Indonesian University. However, the paper presents several weaknesses, both in terms of relevant research and method, as well as the conclusions drawn.

On one hand, references are missing when it comes to several issues specific to OER. For instance, although the authors acknowledge that "OER seems not to be very widespread in language learning", more references are necessary regarding this use, for the paper to be stronger both in theoretical assumptions as well as in the methods used. Also, terminology is not always clear and needs further development, as in "OER of the MOOC type".

On the other hand, the methodology doesn't clearly identify the source of OER (Internet pages are referred to as a general reference). The criteria to find and select suitable OER are not described nor is the implementation clear, as it is not possible to understand what students are required to do with the OER materials or how they are incorporated. Furthermore, it is unclear what the authors mean when they say that other materials were used, that were not OER, but freely accessed. The benefits for lecturers are not quite clear and for students they are not mentioned at all. For a stronger paper on the subject, the advantages of OER for language learning need to be further explored,

The authors initially claim that there is a shortage of OER for language learning and identify this as a major obstacle to the use of OER. However, in the discussion part of the paper, the authors refer that they "have found that there are abundances of OER for German language learning on the Internet".

Regarding the results section, the authors mention that the results are in line with other studies when it comes to the lack of quality of OER, but throughout the study, this factor is never referred to. They do, however, mention that, despite finding OER, lecturers still had to make them suitable to their needs, and this is implied as a weakness of OER, instead of one of its benefits, that is the possibility to remix and repurpose materials.

The research objectives could also be more aligned with the effective study, in order to include lecturers' perceptions on OER use.

There is an interesting attachment which identifies all the OER and their source and is also shared as an OER, so it provides a useful contribution for the identified shortage of materials in this field.

## MOOCs

### Examining students' readiness for MOOCs: Applying a structural equation modeling approach

Alshammari, S. H. (2022). Examining students' readiness for MOOCs: Applying a structural equation modeling approach. *International Journal of Technology in Education (IJTE)*, 5(2), 221-234. <https://doi.org/10.46328/ijte.284>

Reviewed by Martin Weller (The Open University, UK)

This article examines students' readiness to adopt MOOCs using the Student Online Learning Readiness (SOLR) model (Yu & Richardson 2015). It highlights the low completion rates and the need for learners to take greater responsibility for their own learning in MOOCs as indicators that not all learners are ready to engage with them. The SOLR model they adopt focuses on three competencies: technical competency (TC), communication competency (CC), and social competency (SC). The authors use a questionnaire to assess these competencies in over 100 learners. They report that technical and communication competencies had a positive effect on students' readiness to study MOOCs, while social competence had no effect. The authors note that other factors such as motivation could also play a part in MOOC readiness.

This is a well framed study, although limited in scope to one university and only a few subjects. It is a good reminder that the 'openness' of MOOCs is not open to everyone, and demonstrates that they tend to favour learners with existing skills and competencies.

### Recommended Guidelines for Effective MOOCs based on a Multiple-Case Study

Guerra, E., Kon, F. and Lemos, P. (2021). Recommended Guidelines for Effective MOOCs based on a Multiple-Case Study. Technical Report RT-MAC-2021-02 <https://arxiv.org/pdf/2204.03405.pdf>

Reviewed by Anuradha Peramunugamage (The Open University of Sri Lanka, Sri Lanka)

This study analyzed data from seven successful massive open online courses (MOOCs) in the fields of software technology and entrepreneurship, offered by a comprehensive online education platform (Coursera) in partnership with three public

higher education institutions in Brazil (ITA, USP, and UNICAMP) that attracted more than 150,000 students in 2018–2020. A mixed-methods approach was employed for data collection and analysis. Important guidelines were established from MOOC data to assist MOOC instructors in designing courses with fewer dropouts. This is a well-structured study, but its scope is confined to three universities and a few courses. A well-explained paper on the development of MOOCs.

It assessed information about the student's profile, course withdrawal, incomplete activities, and video replays; however, it did not explain student performance. This article analyzes data on student behavior and student demographics in online courses and focuses on discovering trends in how students behave during the course. The retrieved data was used to construct charts depicting the number of students who began each activity in a given course and the number of students who completed each activity. The order of activities performed by each student throughout a course; the number of times a student performs an activity; and standard student information in a course

According to the data presented, professionals desired to recycle their knowledge by learning new techniques, programming languages, and technologies, as well as receiving business and entrepreneurial advice. The results indicated that the majority of students only watch the first videos, so the instructor should avoid assigning difficult tasks in the first week and focus on motivating the students for the course. It is recommended to emphasize the course's value to the student's life or career, as well as its significance.

Similarly, courses should not be excessively long, and longer courses should be divided into units of 3 to 5 weeks. This practice gives students more flexibility, which increases their engagement and decreases the overall dropout rate. The most significant factor is that experienced students may not want to follow the course sequentially in the order determined by the instructor, but rather prefer to skip ahead to the topics he or she believes will be more beneficial. Therefore, it is recommended to present an overview of each course module's content at the beginning of each module to allow the student to choose topics that are of interest to him or her. Instructors should consider the specific nature of the course, the discipline to which it belongs, and the attention span of the intended audience when determining the length of the videos.

Evaluation tasks are a checkpoint that students who wish to perform well in the course visit multiple times. The review of the concepts that the instructor wishes to emphasize may be incorporated into the evaluation activity as an introductory text or video, or even within the activity itself. It is also extremely helpful to have a teaching assistant who can monitor the course forum daily and respond to student



inquiries as soon as possible. However, instructors should also encourage students to assist one another in the forum.

## Decrypting the Learners' Retention Factors in Massive Open Online Courses

Pant, H. V., Lohani, M. C. and Pande, J. (2022). Decrypting the Learners' Retention Factors in Massive Open Online Courses. *Journal of Learning for Development*, Vol. 9, No. 1, pp. 37-54.

[http://oasis.col.org/bitstream/handle/11599/4032/2022\\_Pant\\_Lohani\\_Pande\\_JL4D\\_Vol9No1.pdf](http://oasis.col.org/bitstream/handle/11599/4032/2022_Pant_Lohani_Pande_JL4D_Vol9No1.pdf)

Reviewed by Martin Weller (The Open University, UK)

This paper investigates factors influencing completion rates in Indian MOOCs. After reviewing the literature on retention and completion, the authors propose 8 hypotheses relating to retention factors, such as "Content localisation support will have a significant positive effect on the perceived usefulness of MOOCs". Using a combination of survey and interviews, the authors investigate these hypotheses with relation to learners on the SWAYAM MOOC platform. Through detailed statistical analysis the authors highlight four factors as being particularly relevant in their context. These are termed Credit Mobility (ie being able to transfer study credit for MOOCs), Latest Trend Course (the currency and attractiveness of the topic), Content Localisation (primarily in the form of language), and Perceived Effectiveness (how directly useful a MOOC is for the learner).

This is an interesting paper, because, as the authors note, the Indian Government has invested heavily in MOOCs and views them as a key factor in their educational strategy. Understanding the factors that in this context will contribute to their success is therefore important for a large number of learners.

## A proposed model to design MOOCs through the lens of addressing graduate skill gap

Hossain, M.N., Hossain, M.Y., Bao, Y., Kumar, N. and Hoque, M.R. (2022). A proposed model to design MOOCs through the lens of addressing graduate skill gap. *Higher Education, Skills and Work-Based Learning*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/HESWBL-04-2021-0070>

Reviewed by Anuradha Peramunugamage (The Open University of Sri Lanka, Sri Lanka)

The goal of this study is to explore the mediating impact of psychological need and immersive experience on graduates' skill gaps in massive open online courses (MOOCs) adoption intention and offered a new model for the course developer. The proposed research model is established by combining two theoretical models, namely, the self-determination theory, network externalities theory, and technology adoption theory. Data are collected from 318 respondents to test the model. Structural equation modelling (SEM) is utilized to assess the data. The study demonstrates that the perception of psychological requirements and immersive experience influences the influence of skill gap and social interaction on MOOC adaption willingness. However, immersive experience alone cannot impact adoption intention. Similarly, psychological needs cannot have a major impact on adoption intention without the graduate skill gap.

Based on the combined theoretical framework and statistical analysis, it is found that the impact of the skill gap on adoption intention is large in the presence of graduates' psychological demands. Similarly, the impact of social contact on the adoption intention has considerable implications in the context of an immersive experience. Network benefits were also found beneficial for this adoption. This study also helps by embracing the idea of immersive experience to allow improved virtual social interaction.

Research outcomes help instructional designers and course developers even though the proposed new model is not clear. The literature widely explained the importance of psychological need and immersive experience on graduates' skill gaps on MOOC. Researchers can extend these outcomes with different other MOOCs.

## Quality

### Quality Assurance of Open Educational Resources

Zawacki-Richter O., Müskens W. and Marín, V. I. (2022) Quality Assurance of Open Educational Resources. In: Zawacki-Richter O., Jung I. (eds) *Handbook of Open, Distance and Digital Education*. Springer, Singapore.

[https://doi.org/10.1007/978-981-19-0351-9\\_43-1](https://doi.org/10.1007/978-981-19-0351-9_43-1) /

[https://link.springer.com/content/pdf/10.1007/978-981-19-0351-9\\_43-1.pdf](https://link.springer.com/content/pdf/10.1007/978-981-19-0351-9_43-1.pdf)

Reviewed by Kathryn R. Johnson (Athabasca University, Canada and Northern Michigan University, USA)

The article begins with the acknowledgement that open education has deep roots that expanded during the 1960s' nontraditional learning initiatives enhanced by the technology that facilitated the establishment of open universities. In more recent years, the open education movement has expanded with the creation and proliferation of Open Education Resources (OER) and policy statements by organisations that advocate creating and disseminating OER as an essential tool to help achieve the United Nations 2030 Agenda Sustainable Development Goal of creating more inclusive and open knowledge societies. The authors contribute to this goal by creating an OER quality assessment instrument that will help overcome the widely recognized barrier of OER quality concerns that continue to hinder OER implementation worldwide.

The article summarises findings from the EduArc ten-country case study, published in a 2020 article, that investigated digital infrastructure in higher education and quality standards for OER. China, Korea, and Turkey have top-down national regulations for OER quality. Canada, Japan, and Spain rely on the meso level with independent institutional guidelines. Individuals at the micro level conduct quality assurance of OER in Australia, Germany, and South Africa. These examples illustrate the impact of political centralization or lack thereof in the ten countries. A reader with no prior knowledge of the EduArc project may find this section confusing and would likely need to read the prior publications for clarification about faculty perceptions of OER quality and how the Hamburg Open Online University's study informed the creation of the OER quality model.

The article's core contribution to open education praxis is a validated and reliable Instrument for Quality Assurance of OER (IQOER). The IQOER offers two synthesized options to assess 15 quality criteria. The short version uses classification scales with ratings from one to five for each criterion. To remedy potential measurement obstacles of the short version, the long IQOER uses the mean of

Likert scale results for each criterion. The IQOER is a timely, useful, and clear quality assessment tool.

The authors stress that quality assurance, instruments, and assessment should be embedded within a broader quality assurance process with attention to when, by whom, how, and why any OER assessment occurs. The authors elaborate on each of those four considerations. They also emphasised that any measuring instrument should be a starting point for an ongoing quality improvement process that engages the many stakeholders involved with OER. Ultimately, any quality assessment process should facilitate the goals of creating OER, helping individuals and institutions select quality OER, informing users, and contributing to open educational practices that will help fulfil the UN Sustainable Development Goals of equitable and inclusive education.

## Would you use them? A qualitative study on teachers' assessments of open educational resources in higher education

Baas, M., van der Rijst, R., Huizinga, T., van den Berg, E. and Admiraal, W. (preprint). Would you use them? A qualitative study on teachers' assessments of open educational resources in higher education. *The Internet and Higher Education*. <https://doi.org/10.1016/j.iheduc.2022.100857>

Reviewed by Kathy Essmiller (Oklahoma State University, USA)

The purpose of this paper is to share what teachers themselves consider when evaluating the quality of open educational resources. Open educational resources (OER) are defined in this piece as materials licensed in a way “which enable teachers to retain, re-use, remix, revise and redistribute the resources” (Baas et al., 2022, p. 1). The authors gathered data from eleven participants teaching in higher education; data collection methods included pre and post association maps, plenary meetings, and individual interviews. The data was analyzed in three phases. The first phase used a two-column method “based on Argyris and Schon (1974)” (Baas et al., 2022, p. 4). The second phase brought the authors to their final themes, and the third phase included an independent researcher’s validation of the data collection process and quality. The authors found that teachers consider content, design, usability, engagement, and readability when evaluating the quality of OER.

The article includes a literature review which draws upon the work of contemporary researchers, highlighting questions and explorations related to open practices which have been recently undertaken, in addition to scholarship which has informed research in the field over time. The methodology is well justified, and the methods

are described in sufficient detail for researchers seeking to replicate the study. The authors share a rich account of their data analysis, enabling readers to clearly understand how the themes were determined. While acknowledging limitations related to teacher's familiarity with the subject area for which they were evaluating the OER, the authors have enacted and shared out a replicable research project. The findings suggest that teachers should be included in curriculum related conversations about OER. The authors also recommend that institutions of higher education provide support for teachers adapting OER.

## Technology and Infrastructure

### Online Infrastructures for Open Educational Resources

Marín V.I., Villar-Onrubia D. (2022) Online Infrastructures for Open Educational Resources. In: Zawacki-Richter O., Jung I. (eds) *Handbook of Open, Distance and Digital Education*. Springer, Singapore.

[https://doi.org/10.1007/978-981-19-0351-9\\_18-1](https://doi.org/10.1007/978-981-19-0351-9_18-1)

Reviewed by Vidminas Vizgirda (University of Edinburgh, UK)

This article presents an overview of Open Educational Resource (OER) infrastructures around the world ('infrastructures' meaning 'sources that host OER'). It covers the main kinds of infrastructures, e.g., repositories and open textbooks, international examples of such infrastructures, and examples of initiatives in each continent. The article then follows up with a literature review of the main challenges faced by OER infrastructures.

The list of presented examples is not exhaustive, which is unsurprising, as there are thousands of existing OER initiatives. Most chosen examples are Higher Education oriented. The ones described in this article seem to be the most popular instances, although no explicit criteria for including or excluding examples are mentioned, which a structured literature review would have to include.

The research question is not made explicit in this article – the overview is a factual historic account of OER infrastructures and the literature review is broad and generic, so an implicit research question may be "what OER infrastructures are out there and where are they?". The conclusion states that OERs are used differently in different institutional, social, and cultural contexts and that further research on the topic is needed. This conclusion is backed up by some references in the literature review but is unexpected – it is not linked to the implicit research question. It could be linked if the preceding overview of infrastructures included details about the social and cultural context of presented examples.

Overall, this article offers a brief introduction to the topic of OER infrastructures. It is written accessibly for someone new to this topic, includes helpful maps and diagrams, and links to the websites for most of the given examples of infrastructures. It could be helpful as an overview for people unfamiliar with the topic or as a reference of links to existing initiatives categorised by geographical boundaries for researchers focusing on a specific geographical location. This article could also appear in the literature review chapter of a larger publication, focusing on a specific research question.

## An Embodied Perspective of Open Educational Resources (OERs) Collaborative Design supporting Self-determined and Autonomous Learning

Mazzucato, A. and Kic-Drgas, J. (2021). An Embodied Perspective of Open Educational Resources (OERs) Collaborative Design supporting Self-determined and Autonomous Learning. *Proceedings of the Third Symposium on Psychology-Based Technologies (PSYCHOBIT2021)*, October 4–5, 2021, Naples, Italy.

<http://ceur-ws.org/Vol-3100/paper1.pdf>

Reviewed by Robert Farrow (The Open University, UK)

This conference paper from 2021 reports on work being carried out in the EULALIA project (Enhancing University Language courses with an App powered by game-based Learning and tangible user Interfaces Digital Creativity Enhanced in Teacher education). The main focus of the project is a tool that has been created to facilitate language learning by offering “multimodal-multisensory learning scenarios” that are more embodied, gamified, and flexible. This is achieved by using the STELT (Smart Technologies to Enhance Learning and Teaching) software in conjunction with interactive physical maps which can be read using the nearfield communication (NFC) reader on an Android smartphone. As users navigate their maps they can engage in different language learning scenarios which are held to be more authentic because they represent real-world interactions.

The OER element here is found in using a collaborative design framework to produce learning objects and STELT scenarios for language learning. The relevant affordances are in the co-creation of a learning object which brings educators and learners together in a partnership of open pedagogy. Two workshops provided the principal contribution for the creation of the OERs. The OER examples discussed in the paper include scenarios for shopping, studying, transport and finding accommodation.

However, the OERs themselves are not really the focus of the paper. No detail is provided about licences used or where to find the OERs for potential reuse. Rather, OER seems to be a route for effective collaboration in a broadly Constructivist paradigm. The extent to which these learning scenarios can be described as ‘embodied’ is also debatable since it mostly just involves moving a smartphone over a map or other image rather than pulling up the same information through a website, for instance.

Perhaps these are elements which will be addressed as the project progresses. The piloting and evaluation of EULALIA is ongoing, but it is good to see ways in which OER can be integrated into collaborative research.

## Visual citation navigation of open education resources using Litmaps

Kaur, A., Gulati, S., Sharma, R., Sinhababu, A. and Chakravarty, R. (2022). Visual citation navigation of open education resources using Litmaps. *Library Hi Tech News*, Vol. ahead-of-print No. ahead-of-print.  
<https://doi.org/10.1108/LHTN-01-2022-0012>

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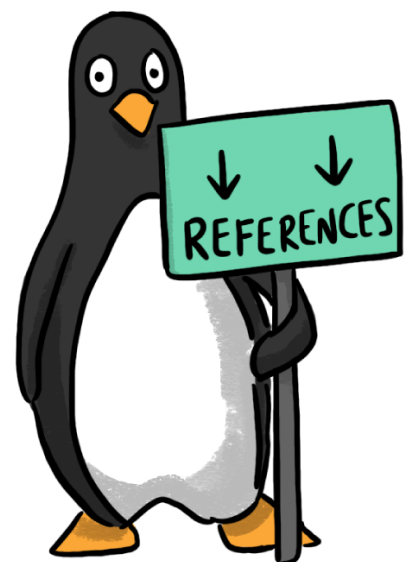
This short conference paper details the development and features of the Litmaps software. Litmaps provides visual representations of citation networks and other connections between items of literature relating to OER. The citation networks can be understood in terms of different degrees (i.e. citations of citations) which highlights the indirect relationships between papers and evolutions in citation networks over time. Litmaps offers an elastic search function which allows for alternate ranking and presentation of results.

Most of the functionality offered by Litmaps is generic in so far as the same network analysis engine could be applied to any field of literature. Consequently, while the functionality described is powerful and could lead to new insights, there is not an obvious sense of how this might be integrated into an OER workflow for teaching and learning. However, the interface does support connections to Orcid and has some citation management capabilities (if you're using Bibtext files).

Perhaps the most interesting feature for a researcher is the ability to generate literature maps from a single DOI, offering a way to quickly purview the significance of a particular piece of literature. It should be noted, however, that the algorithm (built using Microsoft Academic Graph and Semantic Scholar) used to identify and organise map connections does not display exhaustive results but those which have been filtered. Thus, it is possible to overlook some resources and/or connections. This perhaps limits its usefulness as a research tool.

As a way of exploring literature, Litmaps offers some interesting functionality that could be useful - but it is best thought of as a complement to more traditional approaches to search, discovery and management of references.





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