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RESEARCH ARTICLE

REVISED Assessment of the use of Open Educational Resources at five European Library and Information Science higher education institutions during and post-COVID-19 pandemic

[version 3; peer review: 2 approved, 2 approved with reservations]

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Abstract

This article presents an analysis of the impact of Open Educational Resources (OER) during the COVID-19 pandemic, as well as their potential use in the post-pandemic, in Library and Information Science (LIS) higher education institutions. The research explored how OER were used and created, what were the main barriers and drivers in practice and some main lessons learned that can help to improve the quality and increase the use of OER beyond times of crisis. The research was based on fieldwork carried out in the LIS departments of the universities of Barcelona (Spain), Hildesheim (Germany), Osijek and Zagreb (Croatia) and the University of Library Studies and Information Technologies in Sofia (Bulgaria). The methodology approach was qualitative and was based on interviews with faculty and focus groups with students. Results show that faculty members were still hesitant to adopt OER since they generally did not consider them. Moreover, those who did use them did so on their own initiative and as additional resources. We discuss the different speeds of OER implementation that have been observed depending on the faculty's

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prior level of knowledge, and on whether their institutions and countries are prepared to support the use of OER. The promotion of post-pandemic OER involves greater capacity building, as well as collaboration and institutional support. Students' attitudes about the usefulness of OER focus on their availability. The large number of teachers and students who participated in the study, as well as the international scope of the study, constitute a strength in the treatment of a topic such as the use of OER where the user perspectives and LIS context have been little addressed in the literature.

Keywords
Open Educational Resources (OER), Library and Information Science (LIS), Higher Education, COVID-19, Emergency Remote Teaching (ERT), Digital education.

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REVISED **Amendments from Version 2**

** Introduction:*

- Some reorganization of the content and brief new fragments of text have been added to reinforce the coherence of the discourse about OER use research and the context of our study.

- The subsection "Purpose and research questions" has been enlarged to offer a better justification of the study and a clear statement of the problem and the significance of the study.

** Materials and methods (former section "Methodology"):*

- The section has been renamed to fit the actual scope of the study design and the steps for its implementation.

- Changes in some concepts in the text have done to use correct terms.

- The text just before the Table 2 has been reworded to clarify the inductive coding of interviews and focus groups.

* Discussion:

- Slight changes have been introduced in some paragraphs of the discussion, to improve the understanding of what is being explained and to make the discussion more consistent with the overall content of the results section.

* Further directions:

- Some bibliographical references have been added as examples of the type of work that would be of preferential attention in the future systematic literature review.

* References:

- Four new references have been added.

Any further responses from the reviewers can be found at the end of the article

Introduction

The global COVID-19 pandemic impacted education in a disruptive way, forcing academics and students worldwide to adapt their courses to the online educational environment in a short time. This situation led to the adoption of more online resources than ever before; ranging from paid resources to commercial content that was temporarily available for free during the pandemic and Open Educational Resources (OER) (Schaffhauser, 2020; Stracke *et al*., 2022).

While there is no single definition of OER, the current UNESCO definition-included in the UNESCO OER Recommendation-is widely accepted: "learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open licence, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others" (UNESCO, 2019, 5). In such an urgent transition during the pandemic to remote education, OER might be very important given their characteristics of openness, low cost, and flexibility. Moreover, they have the potential to transform teaching and learning to make these more accessible and equitable (Miao *et al*., 2016). However, different conditions must coincide in the space and time to make them genuinely convenient and useful in a crisis of such magnitude. To help determine and examine the real impact and usefulness of OER, this article aims to contribute with a European case study based on the experience of five higher education institutions (HEIs) in the field of Library and Information Science (LIS).

OER global initiatives

The pandemic increased awareness of the internationalization of educational resources, which led to the development of open education solutions and platforms and more sharing and use of OER around the world.

Research into the impact of OER during the COVID-19 pandemic, and beyond, can be approached from different perspectives, (technological, sociological, emotional and economic). The one that we are firstly interested in within the scope of this study is how OER have been introduced and used to support emergency remote teaching (ERT) in higher education (HE). This context is very important to frame our study, as ERT is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances, that contrast to experiences planned from the beginning and designed to be online (Hodges *et al.*, 2020).

In this sense, there are several reports from international organizations (European Commission, 2020; OECD, 2021; UNESCO, 2022) that show worldwide examples of positive initiatives and changes in education as a reaction to the pandemic, both at the institutional and national levels. There is also some collaborative research, based on analysing case studies in different countries (Biernat *et al.*, 2022; Bozkurt *et al*., 2020; Ossiannilsson *et al*., 2020; Stracke *et al*., 2022), that provides a global outlook to assess the COVID-19 education crisis in relation to OER.

Some studies highlight that countries with years of experience in distance learning systems (such as in India, South Korea, and Sweden), or with a long tradition to Open Education (as Canada) and HEIs with existing OER repositories or communities of practice based on the ideology of Open Education, were better prepared for the emergency switch to remote education that the pandemic entailed (Biernat *et al.*, 2020; McGreal, 2020; OECD, 2021; UNESCO, 2022); since they had several initiatives that supported the use and adoption of OER.

For instance, there were countries, such as China, Brazil and Indonesia, that had OER government-initiated and supported programmes (Alhaj *et al*., 2021; Huang *et al*., 2020; Ossiannilsson *et al*., 2020). At an institutional level, there were also examples of online universities (such as Athabasca University, Open University of the Philippines and Indira Gandhi International Open University) and others with previous experience in online learning or open education (such as British Columbia) that were aware of OER and were using them during the pandemic (Arcebuche, 2022).

Most of this relevant literature collects cases of positive reactions to COVID-19 lockdowns through the implementation

of OER in education, but it does not delve into what happened in those countries or institutions that were less prepared or had less experience.

Main actors, contexts and scenarios of OER

Our study aims to understand the use of OER in a specific spatial context and disciplinary field, that of LIS at the higher education in Europe, and with the focus on faculty and students experience during COVID-19. But as OER use has been analysed from several different geographies, circumstances and disciplinary angles, it is worth to frame our contribution among previous works on the use of OER at the university level, regardless of the discipline and the country, to contrast our perception on the lack of certainty on the diagnoses on the level of OER use.

In that sense, a systematic review by Otto *et al*. (2021) reported about the little-investigated empirical effects of the use of OER on established pedagogical approaches. Nevertheless, several studies have been identified on the faculty's perspective regarding general awareness of OER (Biernat *et al*., 2021; Christoforidou & Georgiadou, 2021; Watermeyer *et al*., 2021) and their attitudes to OER use (Karataş *et al*., 2022; Otto, 2022; Sunar *et al*., 2022). Regarding the students' view, apart from a few projects that focused on their perceptions of the usefulness of OER (Arcebuche, 2022; Cheung *et al*., 2022), most have centred primarily on the students' attitudes towards technological change in education (Aguilera-Hermida, 2020; Händel *et al*., 2022).

From a disciplinary perspective, Cisel (2024) notes the need to consider the academic discipline of faculty and students when exploring their experiences with OER. In this regard, LIS knowledge area is singularly interesting since there are few studies that directly address OER in this discipline and fewer that refer to their impact on faculty and students during or after the COVID-19 crisis. Among those that do exist, some predate COVID-19 (Katz, 2020) or focus on parallel subtopics such as LIS training programs (Bell, 2021; Santos-Hermosa & Atenas, 2022) and the role of the librarians in OER (Kimball *et al*., 2022). Finally, there is another group of LIS studies that address OER from a broader perspective; mainly from digital education (Wöbbekind *et al*., 2023) or awareness (Sibiya & Evans, 2024).

With regard to the differences according to geographical area, Otto *et al*. (2021) pointed out trends and gaps in OER research, noticing that certain debates have received uneven attention depending on the geographical area, as in the case of research on Open textbooks mainly focused on the United States of America. Priora & Carloni (2023) also added that the European scenario on OERs looked rather different from US and Canadian realities. In this regard, the European Commission (2020) highlights that European universities were moving first steps towards the promotion of OERs and that massive open online courses (MOOCs), offered by some European HEIs, aroused great interest during the pandemic. Other more recent European projects, such as the European Network for Catalysing Open Resources in Education (ENCORE) reported that, despite the ambition of the EU to achieve an open and inclusive educational environment (European Education Area) by 2025, the uptake of OER in Europe still appeared to be a scattered and disharmonized phenomenon (European Network for Catalysing Open Resources in Education, 2021). As a specific example of this dispersion, one could mention that copyright rules in the EU are still significantly fragmented, so copyright legislation presents additional constraints to collaboration among countries on OER development (Priora & Carloni, 2023).

Such a diversity of contexts and actors, together with the lack of a solid body of scientific evidence on the use of OER, has been reflected in the deepening inequalities in the use of OER during the pandemic, both within and between countries, but also it has revealed positive features and initiatives as well as some weaknesses and vulnerabilities.

Purpose and research questions

Our research aims to contribute to the understanding of existing practices regarding the use of OER as well as its advantages and disadvantages, during the pandemic and beyond. The purpose of the work is to fill in some of the aspects pointed out by the previous literature, as well as potential research gaps in research like evidence of OER use by less prepared institutions – such as, predictably, DECriS partners. Also, it's important to frame the research within the European disparity of approaches to OER and the scarcity of research in the LIS area on this issue.

In our work, we assumed that with the sudden implementation of the ERT during the pandemic, OER would be a highly valued, searched and used resource. However, perceptions gleaned from previous exploratory contacts among members of the DECriS Project consortium, as well as from the literature consulted, led us to doubt the actual use and intensity with which OER were employed beyond isolated cases. The purpose of the research was to obtain evidence of the actual use of OER, to capture the barriers that teachers experienced to more systematic use, and to explore lessons for optimizing their future use in normal teaching situations.

We consider that the value of this paper is that it not only identifies the main barriers, as well as the benefits of adopting OER, but also highlights some real-life practical experiences of these resources during the ERT in the COVID-19 pandemic. Moreover, it also provides useful guidelines on how to effectively integrate OER beyond the pandemic period, based on what has been learned from these experiences. The focus of the study in LIS higher education institutions is very significative, as far as future librarians and as information science specialists, students should become potential OER advocates and creators of tools of searching. So that, assessing the knowledge and experience of LIS students and teachers on this issue could be a game-changing research output. To explore and discuss all these issues, we established three research questions:

Q1: In what ways have OER been used and created for ERT during the COVID-19 pandemic?

Q2: What are the barriers and advantages of OER reported during the COVID-19 pandemic?

Q3: What are the main lessons learned during the pandemic that can help foster OER post-pandemic?

Materials and methods

To describe the design of the fieldwork and data analysis, we have checked it against the Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong *et al.*, 2007). In this section, we present different aspects related to research team and reflexivity, study design and data analysis and reporting.

A qualitative approach has been adopted through semi-structured interviews with faculty and focus groups with students, all from LIS departments at four European countries of the five HEIs that are partners of the DECriS Erasmus+ Project. Content analysis was chosen as the qualitative method to systematically organize data into a structured format through inductive open coding. Both, interviews and focus group collection techniques, are well-established instruments in educational science. While the first allows individuals to explain how they understand and interpret the world around a topic (Brinkmann & Kvale, 2018), the second provides interactions within a group and generates both different and common feedback and ideas (Smithson, 2000).

During the first four-month period of 2022, a total of 39 interviews with faculty and 10 focus groups with a total of 47 students were carried out, both face-to-face and online, depending on the COVID-19 situation or the participants' preference. No one else besides the participants and researchers was present during the interviews and focus groups.

The interviewers and moderators of the focus groups were part of the working teams from each of the institutions participating in the DECriS project. They were all faculty from these institutions and received specific training in order to take consistent testimonies from the 5 institutions where the fieldwork was carried out. They were all familiar with the context and the profiles of the interviewees, given that they belonged to the same institution. The interviewees were well informed about the DECriS project and the research objectives. The fact that the interviewers and interviewees belonged to the same institution was an advantage, as there was a common basis of knowledge of the context of each of the institutions. On the other hand, this familiarity between interviewers and interviewees may have been a limitation in terms of the way in which interviewees expressed their experiences and opinions.

The breakdown of participants by partner can be seen in Table 1. Throughout the paper, all the quotes from the interviews are labelled with the partner code followed by the interview number (e.g., [OJ_1] for Osijek teacher #1); for focus groups we added the letters FG before the number (e.g., [OJ_FG_1] for Osijek focus group #1).

Table 1. Number of interviews and focus groups held by all partners.

Partner	Interviews	Focus Group (Students)
Barcelona [BA]	14	2 (10)
Hildesheim [HI]	3	2 (9)
Osijek [OJ]	9	1 (6)
Sofia [SO]	8	4 (16)
Zagreb [ZA]	5	1 (6)
Total	39	10 (47)

As we used two qualitative data collection techniques that involved a relatively small number of people compared to the total teacher and student populations, it was necessary to determine the criteria and the sampling system to decide who would be interviewed and who would be part of the focus group meetings. Therefore, the purposive sampling technique (i.e., non-probabilistic sampling) was applied under the knowledge that each partner had of the context of their participants. To simplify the conduct of the interviews and focus groups, once the criteria and the sampling routine had been established, each partner institution made its choice of people considering that it was necessary to ensure that the samples had the appropriate representation regarding the different students' levels and teachers' subject domains. The following criteria were applied:

- Bachelor's and master's degree faculty and students of various courses who were teaching or enrolled during the pandemic period of lockdowns (2020–2021).
- Parity between genders and age groups was respected both for the participants of the interviews and the focus groups.

In compliance with the COREQ guidelines for interviews and focus groups, our research prioritized ethical considerations. Written informed consent was diligently obtained, ensuring participants understand the study's purpose. Stricter measures, including interviewees quotations anonymization at the results outputs and secure data storage, were implemented to guarantee confidentiality. The design of the study, as well as the process of data collection and its safekeeping, was approved, on 2021-11-05 by the Bioethics Commission of the University of Barcelona (CBUB) [Institutional Review Board

(IRB00003099) http://www.ub.edu/comissiobioetica/en], as the Barcelona team led the IO-2 work package of the DECriS Project.

The interviews and focus groups were conducted and audio-recorded, following common guidelines (Urbano *et al.*, 2024), by each education institution in the native languages of their respective countries (Bulgarian, Catalan, Croatian, German, and Spanish). The audio recordings were transferred to the Barcelona team to carry out an automatic transcription, which was subsequently edited, listening to the original audio and translated into English by each of the participating teams. During the editing and translation process, the most important phrases and key concepts were highlighted by each partner team, to guide the coding work by the Barcelona team who consolidated the report on the interpretation of the results. Qualitative data analysis software, Atlas.ti, facilitated the management and analysis of interview and focus groups transcripts. With all the text files in English, the Barcelona team worked on the inductive coding (Mayring, 2010) of all the transcriptions and data analysis to produce the preparation of the reports of each centre and the final joint report. The analysis was double-checked by a researcher of each partner to avoid bias or misunderstandings. The questionnaire script used in the interviews and focus groups was structured, in both cases, into six main thematic sections with a total of 38 questions which is also included in the Mayring approach (Boté-Vericad *et al.*, 2022; Braun & Clarke, 2006). While this guide covered a wide range of topics, aligned with the overall objectives of the DECriS project, this paper focuses specifically on the topic referring to the real situation and perception of OER.

Table 2 presents the general coding scheme at two levels: code and subcode. The specific themes (identified as subcodes) emerged through inductive coding, but all subcodes were nested on the go of coding inside four general themes linked to the areas where we have figured out our study could reach results: Adaptations, Problems, Advantages, and Improvements/Lessons learned.

Results

OER use and creation

In terms of how the OER were used, faculty reported that they adapted previous materials to the online environment and that some of them also used OER as additional or supplementary material. They specified that they used open resources from others (such as videos, TED talks, MOOCs, etc) and resources in the public domain, as can be seen in the interview extracts below.

> "I have used some of them [OER], but they were not my own resources. I've already forgotten what they're called – a kind of online university where you have MOOCs". [HI_8]

> "I use mostly video materials because I think the students are already reading enough written texts. They were mostly

Table 2. Traced occurrences for "OER" codes.

Code	Subcode	Category
Adaptations - AD (OER Use and creation	AD01	Approaches to emergency remote teaching
	AD04	Supplementary materials provided by teachers (*)
	AD05	Looking for new educational resources and use of OER
	AD06	Creation of OER
	AD08	Production of videos or voice clips other than recorded live lectures
Problems - PR (OER Barriers)	PR06	Not a good time to create new material from scratch purposely designed
	PR08	Access to library resources and copyright problems
Advantages -AV (OER Advantages)	AV04	Promotion of the creation and reuse of educational resources
Improvements - IM (Lessons learned)	IM03	Promotion and support for improving OER use and creation
	IM05	Teachers' training and mindset change
	IM08	Improvement of the students' workload estimation when planning courses (*)
	IM15	Strengthening the role and resources of libraries and support services for teachers

Note: Those categories with (*) refer just to students

> video lectures that were in the public domain or available openly on different channels like YouTube" [OJ_6]

> "[Looking for OER] Well, maybe some videos, or some TED talks that I later asked the students to comment on, or I would ask them questions related to the videos." [ZA_5]

It stands out that, while in some cases the faculty verified the terms of use of the material and whether it was available under the open licence, in others they did not:

> "I approach these resources very carefully […] I avoid using resources directly without checking the status of the material." [SO_7]

> "I developed presentations, especially for online learning, in which I put links to access various interactive applications as additional materials with open access. I didn't check whether the resources are licensed or open for use, but after they were uploaded for free access on the Internet, I assumed that training resources were open." [SO_8]

In addition, it has been observed that some faculty members also introduced GLAM (galleries, libraries, archives and museums) resources into their teaching, although it is not clear whether these were OER or non-OER (i.e. with subscription or not under open licences or as public domain with clearly labelled).

> "I especially warn my students to be very careful when using Internet resources and direct them to verified sources. I advise them to use the opportunities offered by libraries and museums." [*SO_7*]

> "Because knowledge exists to spread, I also introduced materials and resources provided by various Bulgarian institutions - libraries, archives, museums, etc., as well as promoted access to the digital library of the University, which we created in connection with the pandemic and its consequences." [*SO_8*]

On the other hand, some students reported that they turned to YouTube on their own for additional help, from tutorials for instance, to fill the gaps in the faculty' guidance:

> "... if we passed the subject, it was because of the YouTube tutorials not because of the teacher. So, you couldn't record his class to follow it as a tutorial, you couldn't do the exercises while he was doing them because you'd miss what he was doing on the screen." [BA_FG_1]

Concerning OER creation, faculty said that they produced short videos to clarify very specific issues or to give instructions on installing and using software, using information resources, etc. The online environment also led to more project-based learning activities and gamification resources being developed.

> "It's a lot of work to record them [videos] and it took a long time. […] But of course, you have to think about the fact that you can reuse them" [*HI_4*]

> "We actually developed some virtual projects. For example, a virtual museum of students and their works in publishing, where they were very engaged." *[OJ_2]*

Another phenomenon observed in the interviews is that although the faculty endorsed the OER philosophy, their productions were not always conceived as such - they did not label them as OER or consider they had OER characteristics.

> "I'm not sure to what extent [I created OER], because, of course, personal experiences are one thing, yes, and the possibility of exchanging [teaching experiences], creating Creative Commons materials, for example, and having them available in a community of users, is another. [BA_8]

In addition, it seems there was not a formal way to integrate OER due to the costs of a more elaborate preparation for the public presentation of materials and the creator's belief that the resource is not good enough or not fully finished; as well as challenges related to licensing, depository, indexing, etc.

> "My only concern [creating OER] is that it's not the best quality. And then I think it would be stupid if someone uses it and then is somehow disappointed […]. So if it didn't cost anything, I would probably say, well, don't cry, if something doesn't work, it's free. But then I would have it. I would like to have it in such an optimal condition, which of course would require a lot of work and refinement." [HI_4]

Opposing positions can be seen regarding the suitability of the pandemic times for creating OER. Some faculty members stated that it was not a good time to create new material from scratch designed for a specific purpose, since the course was ongoing and was not planned to be carried out in a crisis situation, such as the ERT.

> "I didn't create new materials so as not to change the students' work dynamics too much. In fact, we tried to work much harder to support these materials than to create new ones." [BA_10]

Others, however, considered that some experiences and resources used during the health crisis stimulated the creation of materials, some of which may continue to be useful in the return to a more normal situation beyond COVID-19.

> "I kept all the materials somewhere in my archive, so in case we had to teach online again some time, then I could access the materials again. […]." [OJ_4]

Barriers to OER

Some of the main problems that faculty reported were about OER concern findability issues, the lack of knowledge or awareness about OER and the lack of OER other than foreign language resources.

In terms of the problem of finding OER, we observed that some faculty members searched for OER with the aim of

facilitating more dynamic and autonomous learning, but they were not successful. They considered that this was because there were not enough repositories of OER, there was no specific content ready for teaching and currently there is not a culture of sharing. Also, such OER repositories should provide clear information on the licences, in order to dispel legal uncertainty about their use:

> "This is about looking for other digital materials... In fact, I had already looked for them before [the pandemic], but I hadn't managed to find them. [...] We should have more repositories of materials that are useful to us... [the problem is that] we don't share them, or we don't know how to find them." [BA_12]

> "I had problems finding some of the materials and resources that I could use […] I think we should have more repositories of OER and different digital materials that are available to use so there are more in the public domain or licenced through Open Licencing by CC. And I think we should be more open to sharing resources. We talk about open science and open education, but in practice we don't see it so much." [OJ_6]

Searching for videos and online material available in open access, not previously used in face-to-face teaching, has been identified as an important trend among some faculty members to adjust their teaching planning. While some did not find enough online bibliography and digital material openly available, others found videos on YouTube or TED talks from key authors whose books and articles they had recommended in the subject bibliography.

> "I looked for more bibliography online, [a search] that I might not have done in the case of normal face-to-face teaching." [BA_1].

> "I am currently preparing a new subject. I listen to these video lessons by Russian colleagues, as well as North American ones, because I have their books. I have downloaded them for free, there is free access, but I saw that they also had these video lessons that were available on YouTube." [SO_11]

> "I use open access platforms such as TED and YouTube, where the authors have voluntarily provided their materials for free use. I encourage students to use the opportunities of libraries and museums, which provide virtual tours, digital collections and online information services." [SO_7]

In terms of not knowing about or being aware of OER, the express creation of OER was absent in most of the faculty' discourses and reflections. Faculty did not differentiate between open digital materials and the educational resources that correspond strictly to the set of characteristics that define OER.

One of the weaknesses of OER identified through the interviews was that they are not part of faculty' mental framework. Faculty do not know their distinctive characteristics or the repositories in which to locate them and how to evaluate them. In some cases, in which OER were specifically mentioned, faculty said that the ones they found did not fit what they really needed. It is observed that most of them had a fuzzy idea of what OER are and where to look for them.

> "I've probably used them [OER]. Yes, when I used them, I was interested, but now I can't say anything specific." [SO_2]

> "Probably the first thing that came to my mind was that I probably didn't even think that there could be anything relevant to my course, since the topic is quite specific, but I don't know." [ZA_1].

> "I suppose that faculty should investigate the OER available to make more use of the resources that already exist out there ... But, of course, you start searching from your personal experience of contents created for a face-to-face class. Finding equivalents that refer to that exact content is very difficult." [BA_1]

The lack of knowledge that has been identified is also linked to a lack of time to look for new solutions or to adapt existing ones.

> "It's hard for me to find things that are useful. You spend a lot of time looking and what I find isn't much...I think that the idea of OER is very good, but in practice it's hard for me to apply it." [BA_12]

Finally, the lack of non-English OER or availability in multiple foreign languages are other barriers that faculty report.

> "The problem is that they [OER] are in English. Yes, there are opportunities for automatic translation, but the quality is not good enough. A big problem with my subjects is that there are no similar materials for the Bulgarian archival institutions." [SO_4]

Benefits of OER

Some faculty members pointed out that some of the main advantages of OER are that they encourage and foster reusability of materials, that they can be adapted and enriched, and they are available and accessed quickly:

> "Another interesting topic when educational materials are adapted for online teaching is that it encourages and fosters reusability of materials. So, if you can reuse it, then I can also be sick for a week and just upload it." [HI_4]

> "The main advantages of the OER that I would point out are the fast access and that is easy to make changes. I can edit something, I can add, enrich, adapt the resource. They are available from anywhere at any time." [SO_1]

> "I have always believed that what I develop for my courses should be accessible to a wider range of users; so, yes, this was always my attitude. And now the pandemic has intensified this feeling and I think it would be good to work towards creating OER in Bulgarian." [SO_6]

Although there is no evidence whether students are referring to OER or general digital resources, they express a need for some kind of material that they can reuse asynchronously outside the classroom for self-paced learning, to adjust their learning paths, and for clarification, etc.

> "Prof. xx pre-recorded her lectures, so we could listen to them whenever we wanted. The great thing about it is that you can go back to it and listen to the lecture as much as you want." [OJ_FG_1]

> "Apart from googling and searching for materials when we need to find additional information or clarify something we didn't understand, I haven't used any special tools like this [OER], except for normal databases, articles and similar things." [ZA_FG_1]

Needs and requirements to foster OER: lessons learned

Throughout the interviews, it was observed that there have been few approaches to ERT that involved OER, and these have differed among DECriS partners. Most faculty members stated that they modified their materials to make them more compatible with the online environment, but there was little emphasis on specifically including OER. However, there were some cases of institutions and faculty who were more familiar with e-learning (since they had previous experiences and a positive attitude) and were therefore more likely to use OER and implement them in their teaching practice.

The focus groups revealed that although students were happy with the availability of more digital resources, they wanted the teaching of the subjects to be planned better and for the pedagogical practices to be more innovative.

In this diverse scenario caused by the pandemic, some lessons were learned about what requirements were necessary to promote OER beyond the crisis. According to faculty, a change in mindset and more awareness, together with more training and new skills, were some of the necessary conditions. Although institutions offered training courses, they were more related to the features of the Moodle platform associated with active teaching and educational technology, rather than specifically on creating and using OER.

> "Everyone needs new competencies. So, faculty' competencies are very low." [OJ_2]

> "Perhaps it would not be a bad idea to offer some kind of education in general on producing new teaching materials. So that each teacher can choose what suits them." [OJ_1]

> "I have the feeling that it is difficult to deviate from it or to try something new, and we're going through a period of upheaval […]. Something is changing, simply because many new, younger faculty are coming in who are also willing to try something new." [HI_8]

> "We should work more on building awareness around OER. Because I think it's a general problem, so people aren't producing or using OER enough." [OJ_6]

During the interviews, other needs also came up, such as the creation of a catalogue, a guide, or a list of quality teaching material for the different subjects, as well as tools to be able to use the technology better (videos, subtitles, etc.). With a few exceptions, faculty also indicated the lack of centralized support and resources from their institutions and how an improvement in this support and more collaboration could benefit the use of OER. For example, it would be useful to have directives, to share good practices and solutions to problems experienced while using tools and have more resources and digital platforms.

> "[We need] more technical directives about tools, less dispersion…. less "do it yourself"[...] more centralized [support is needed], more training for faculty on resources to work online with a different model of courses." [BA_14]

> "I think it [fostering OER creation] should come from the top, I mean, the university is still a very hierarchical system, and as long as there is no directive from the top that says we want to do this, it's difficult." [HI_8].

Discussion

At the beginning of our study, we had assumed that, in crisis situations, OER would be a key resource for online ERT. But all indications are that this assumption as a starting point was not correct. That is, if OER were not even minimally present in the mental framework or current routines of teachers in normal situations before COVID-19 (as direct users, recyclers or creators), OER was unlikely to be considered in crisis situations. This is why differences in the use of OER were observed according to the degree to which individual institutions in our study, or subjects within an institution, were more digitally and computer oriented. For example, compared to the other institutions, the prevalence of OER use was higher in Hildesheim (Germany), in many courses involving student work with computer applications for which there are materials available at repositories like OpenHPI, that fall within the definition of OER.

OER use was not a magic "pill" to lower the challenge of organizing the ERT alternative to normal teaching. OER require exploration, evaluation, design, adaptation and a final fitting to the academic subjects; tasks that were impossible to carry out due to the rush of the first lockdown and the uncertainty of the following semesters under COVID-19. The results obtained give us the grounds to affirm that teachers' previous experience with OER and the normal use of digital media in some courses more suited to it, constitutes a key differential factor in the level of use of OER during ERT. In general, for similar academic subjects, we have not actually identified many different perceptions of faculty and

students towards OER depending on their context. In any case, for all the five institutions, the more digital and computer oriented was the academic subject, or the teacher background, the more likely OER could have some presence during the ERT and beyond. From a general perspective, as demonstrated with our field work, the presence of real OER has been very low in the solutions adopted in response to the shift to various forms of online or hybrid teaching due to the pandemic.

The faculty interviewed mostly reported that they did not use OER because they were not familiar with the term, OER were difficult to locate, or they did not consider it relevant (because of the language or because they were not ready for specific teaching or discipline needs). However, those who did use OER generally did it as an individual initiative (not supported by the institution) and as additional or supplementary material within their teaching. This situation does not seem isolated, since other European project (European Network for Catalysing Open Resources in Education, 2021) also identified faculty who reported that their organizations' level of experience in OER adaptation was low or even non-existent. We therefore consider that the overall profile of faculty from DECriS institutions would fit the "activist" category, which according to ENCORE would be characterised by being open to using and sharing OER altruistically, without relying on encouragement from their organisation or direction provided by institutional policy.

Our findings on the barriers to using OER show that they are aligned to other studies. More specifically, the lack of awareness about OER (Seaman & Seaman, 2017) and the legal uncertainty (Otto *et al*., 2021) have been found to be the major obstacles to using OER. In this respect, a related key aspect emerged from our results and present in other literature is the urgent need for professional development and training for faculty (Santos-Hermosa & Atenas, 2022; Stracke *et al*., 2022), as well such as not focus on the use of e-learning tools but rather on how to create open content (Nabukeera, 2020).

Moreover, the findability problem connected to the experiences of it being time-consuming to locate relevant OER in different repositories was also a common impediment reported by faculty (Biernat *et al*., 2022; Otto *et al*., 2021), despite the growing number of OER in repositories (Santos-Hermosa *et al*., 2021). As there is no centralized infrastructure for sharing OER, which has been reported as a widespread problem worldwide (Stracke *et al*., 2022), one possible measure would be to have a meta-searcher (Otto *et al*., 2021) to facilitate access from one single platform. In this sense, LIS professionals (both faculty-students binomial and academic libraries) might have a critical role in strengthening action plans and infrastructures to ensure the discoverability of OER.

LIS faculty also stated that the lack of OER for specific topics or perspectives, and the lack of culturally or linguistically tailored OER, were other issues that contribute to these resources not being used. This specificity can be seen as a paradox, since the potential of OER is precisely the flexibility to be adjusted locally and globally. OER have the advantage that faculty can adapt them to their own context to maximize student engagement and promote diverse learning experiences (Van Allen & Katz, 2020). In any case, our findings are aligned to Koseoglu *et al*. (2020), who note a lack of OER development in non-English languages and the need for local OER to fit the learners' contexts and represent proximity perspectives. Our results also underline the need to have subject-specific OER in the LIS discipline, in accordance with the study by Christoforidou and Georgiadou (2021) limited to the field of Arts, that points that the lack of a portal that accommodates OER for Arts Graphics is one of the greatest obstacles to the use of OER. One of the guidelines recently established by UNESCO (2024) is in line with this need, as it promotes supporting and maintaining peer networks to share OER in different subjects and languages. In this sense, after a paper at the last DECriS multiplier event conference (Vallés-Stahnke *et al.*, 2023), the DECriS project final report pointed out the need to create a formalised mechanism for cooperation between the LIS educative institutions in Europe that would serve for the exchange and co-creation of OER.

In any case, DECriS LIS institutions also highlighted some advantages of using OER, both from the point of view of academics and students. However, teachers answers about advantages were contradictory with reflections about their actual experience and behaviour about OER use during the ERT period. From the ideal and theoretical standpoint, they praise the OER possibilities and advantages (such as ease to reuse and adapt), but their actual experience and behaviour does not match their mostly theoretical thoughts about advantages. These are, in fact, some of the best-known benefits of OER, as CC licenses (depending on the type) give permission to modify the content to create new OER that are culturally relevant and inclusive for different contexts and learners (Van Allen & Katz, 2020). Students also appreciated OER, due to the immediacy and usefulness of digital materials (such as tutorials) and their availability outside the classroom. Likewise, Cheung *et al*. (2022) found that students generally consider OER useful as supplementary course materials or to help them to understand concepts. Angelopoulou *et al*. (2022), who studied student feedback on the use of open textbooks, concluded that students with higher motivation to learn perceived this kind of OER as a better option than the traditional textbook in comparison to less motivated students.

It should be noted that students in our research seem to understand OER more as digital resources available online rather than specific open learning material. The study of Arcebuche (2022) also identified that students associated OER with videos, images, e-books and other online resources that they could usually access through webpages, wikis, web engines and YouTube.

Regarding the creation of OER, DECriS LIS institutions do not exhibit much evidence either. Those faculty members

who produced them did it in the form of video, project-based materials and gamification resources. Nevertheless, these resources were often not conceived as OER; that is, they did not have the key characteristics of assigning open licenses, or sharing them openly by depositing them into a repository, etc. Therefore, some of the new resources created seem to be more innovation educational materials rather than OER. These results are also consistent with the findings of other authors (Biernat *et al*., 2022; Kurt, 2019; Sunar *et al*., 2022), which indicates that academics are confused about open licenses, and that they use and create OER under misconceptions or without knowing the theoretical concept about them. On the other hand, there are other studies about OER in the times of COVID-19 that show the creation of some instructional videos designed specifically as OER; in the sense that they are open for reuse and enable student engagement and accessibility (Boté-Vericad & Miguillón, 2012; Doi *et al*., 2022).

All these practices of OER use and creation identified among LIS academics and students evidence a limited readiness for OER implementation during the COVID-19 pandemic. The European Commission (2020) also identified this aspect in a survey among different HEIs on how they could have been better prepared to face the pandemic. Alhaj *et al*. (2021), also reported that the unpreparedness of institutions and their teaching staff has led in many cases (in North America and Europe) to poor quality ERT rather than well-constructed online learning. Similar results were informed in Turkey (Sunar *et al*., 2022), where HEIs were found to be unprepared for online education, with faculty and students lacking the necessary digital skills.

In our study, LIS institutions have mainly focused on tools and workspaces for distance education but have not explored the further possibilities offered by digital OER. The online environment has helped to innovate education and to develop some project-based learning. However, since it is needed a certain shift in mindset and an investment of time for designing and implementing OER, the ERT period caused by the COVID-19 pandemic does not seem to have been the most appropriate time for doing this. Our faculty reported that e-learning and teaching require working on a more carefully constructed and detailed teaching plan and resources. Therefore, for those institutions that were transitioning to online education and becoming familiar with OER for the first time, it seems that the pandemic was not a good time to create new and purposely designed resources from scratch.

This overall scenario shows that the pandemic has been a catalyst for digital transformation in HEIs around the world. The online environment has helped to innovate education and to develop some project-based learning. However, the COVID-19 pandemic does not seem to have been the most appropriate time for OER creation or adaptation by newcomers to these resources. According to Alhaj *et al*. (2021), the unpreparedness of institutions and their teaching staff has led in many cases (in North America and Europe) to poor quality ERT rather than well-constructed online learning.

However, there were diverse contexts and experiences depending on the inequalities and different levels or speeds that have been observed in some countries and educational institutions. While some HEIs are in their infancy stage regarding awareness and engagement with OER and OEP, as we have observed in DECriS LIS institutions, other HEIs have an established culture of OER that has been further strengthened with the COVID-19 educational response. Some of the drivers have been the development of technological infrastructure as well as policies and strategies for a greater engagement with OE (Bozkurt *et al*., 2020; Nagashima & Hrach, 2021; Ossiannilsson *et al*., 2020).

In this regard, the UNESCO (2019) Recommendation on OER also echoes the need to improve some of the aspects mentioned above through its areas of action, such as those of building capacity of stakeholders (i), developing supportive policies (ii) or encouraging the creation of inclusive and equitable quality OER (iii).

Conclusions

a) The impact of OER during COVID on the LIS HEIs analyzed in our research has not been strong, as they are in an early stage of OER implementation

In this study, we have seen that there are different paces of OER implementation in HEIs around the world. In the case of the LIS institutions in our research, they are mainly in a first stage of the process of adopting OER, which, according to Kaminski's (2011) theory of diffusion of innovations, would correspond to the "Knowledge or Awareness" level. As a result, there would still be several implementation stages to go through before shifting from early awareness to full-fledged OER adoption.

This point is especially relevant in the case of the LIS discipline, since the scope of knowledge of LIS faculty is directly related to OER, in terms of their mission of providing access to information for all. Therefore, OER-specific programmes and open educational practice could be introduced into the LIS teaching, which would benefit faculty and students as well as set an example for other disciplines and university communities.

It needs to be understood that we are talking about OER considered as a well-defined typology of educational resource with some distinctive characteristics (Miao *et al*., 2019, p. 9; UNESCO, 2019) that differentiate them from the multitude of resources freely available on the Internet that can have a didactic application. As an example of those resources not considered OER, it can be said that a good number of teachers reported the recurrent use of YouTube and some other video portals to obtain resources to support their teaching. While some videos on YouTube may be the result of projects consciously carried out as OER in their canonical definition, and may be

shared with the corresponding use notes and educational scope, the large majority of YouTube videos used would not correspond, in either the type of licence or the type of pedagogical contextualization, to a good praxis in the creation of OER.

b) OER have been used and created in different ways during the COVID-19 pandemic, depending on the level of awareness (Q1)

In general, there is little awareness about the role and impact that OER can have in education, especially in crisis situations. There was interesting evidence of educational resources being produced and made openly available, although not under a fully canonical model of what is meant by OER, for instance their incorporation into an OER repository or directory. Faculty endorse the OER philosophy, but their productions are not conceived as such under this label and with these characteristics. LIS faculty were not very familiar with OER in terms of how to create them or where to find them, nor with the use of the open licences. However, they showed a good attitude towards using some OER as additional learning resources and towards the innovative creation of more interactive materials. As some OER solutions that faculty used during the pandemic as an "experimental approach" have worked well, now would be the time to develop a consistent teacher training programme.

From the students' perspective, it seems that OER will continue to evolve as an important source of learning materials, as students were especially pleased with the accessibility and reusability of the resources, and they recognized the benefits of using complementary and specialized resources. Although students were not particularly aware of OER during the pandemic, they seem now to recognize their usefulness more than before. Students did not have the perception that they had used OER provided by teachers. When they did talk about that, their knowledge was blurred between open access academic papers and books, OER and free resources of any kind on the Internet. As future librarians and as information science specialists, and therefore as a potential OER advocates, it is a bit disappointing to see such low awareness about OER. This is indicative of the necessity to include the issue of OER in LIS educational programmes.

c) The barriers and advantages of OER reported during COVID-19 are consistent with other previous literature (Q2)

This study, situated in the specific field of LIS, mirrors the results of OER adoption studies in other fields. In any case, this research emphasizes two main aspects: the lack of knowledge about OER and their characteristics and the findability problem with OER scattered across different sources, which are mostly unknown to users. Since being familiar with OER positively affects attitudes towards them, faculty who are unaware of OER are likely to be slow to adopting them and will use OER for supplemental purposes in their courses. Moreover, the fact that many faculty members used YouTube as a key source for locating videos to include in their lessons, demonstrates the importance of effective discovery mechanisms and the need for more training in OER and specialized sources.

d) Some of the main lessons learned that will help to foster OER post-pandemic (Q3) are the need to learn new skills, have more training and have more collaboration and institutional support

Capacity building in OER, as well as know-how to create them and relevant sources to share them, are necessary for them to become generalized. In addition, more collaboration and institutional support are required, both in terms of centres and departments involved (faculty, libraries, educational innovation, etc.), as well as strategies and rewards to foster OER.

Regarding interdepartmental collaboration, LIS faculty could create and employ OER more widely by relying on and working together with their academic libraries, which often stand out by leading or supporting the OER movement. As for the contribution of libraries, it can range from providing library materials for OER creation, selecting existing OER for use, and providing infrastructure (repositories and other platforms), to involving library staff directly in OER development and academic support. In this regard, LIS discipline could be helpful in OER context due to the experience of its professionals (academics and librarians) and their specialization in searchability, repositories management and the ability to identify thematic OER.

Further directions

The overview and the statements about the low use of OER in this paper are the result of fieldwork with LIS faculty and students from five HEI in four countries (Germany, Bulgaria, Croatia and Spain). Therefore, it should be considered as a new partial contribution to the study of the OER implementation. This limitation implies that the findings reported cannot be generalized to a worldwide level or to any thematic area of university education. The implementation and vitality of OER is certainly very varied, as there are different contexts in which different adoption speeds are observed, and in which the results would certainly be more positive. There are some geographies, disciplines and institutions that are much more advanced in terms of OER, but definitely others are at a similar stage to the one described in this paper, or even worse.

So that, further investigation is clearly needed to complete the results provided by the present study. One of the possible directions would be to include LIS faculties from other European universities. It is also suggested that a future study should consider other factors, such as issues related to OER infrastructure or the career-related incentives for the creators of OER, to improve the educational experience of both teachers and students, and development of new policies and regulations affecting education, beyond those devised in response to unforeseen emergencies disrupting education.

In order to consolidate the results on evaluation of OER use with a global perspective, it would also be very appropriate and necessary to conduct a systematic literature review of

works similar to ours, which would shed light on the factors that explain the barriers to OER creation, sharing and use. Works on institutional adoption of OER studies, like Cox and Trotter (2016) and Skidmore and Provida (2019), should also be specially considered. Finally, in line with the current rise of artificial intelligence (AI), it would also be interesting to study the intersection of OER and AI, such as the impact of emerging technologies on LIS area.

Ethics and consent

In compliance with the COREQ guidelines for interviews and focus groups, our research prioritized ethical considerations. Written informed consent was diligently obtained, ensuring participants understand the study's purpose. Stricter measures, including interviewees quotations anonymization at the results outputs and secure data storage, were implemented to guarantee confidentiality. The design of the study, as well as the process of data collection and its safekeeping, was approved, on 2021-11-05 by the Bioethics Commission of the University of Barcelona (CBUB) [Institutional Review Board (IRB00003099) http://www.ub.edu/comissiobioetica/en], as the Barcelona team led the IO-2 work package of the DECriS Project.

Data availability

Underlying data

Due to the sensitive nature of the research and the legal restrictions agreed with the Bioethics Commission of University of Barcelona-CBUB [Institutional Review Board (IRB00003099) http://www.ub.edu/comissiobioetica/en] the supporting data (audio recordings and transcriptions) is not available. The consent of the participants in the interviews and focus groups was obtained under this condition.

However, a fairly complete selection of anonymised excerpts from interviews and focus groups is available as quotations embedded at the complete analysis of the responses that can be found at the Intellectual Output-2 report of the DECriS Project, uploaded to the institutional repository of the University of Barcelona: http://hdl.handle.net/2445/201761 (This report is a working paper and was not peer-reviewed).

Extended data

Figshare: DECriS Project Intellectual Output 2: Qualitative Research Instruments. https://doi.org/10.6084/m9.figshare.25541524.v1

This project contains the following extended data:

- Guide for teachers' interviews
- Students' focus groups moderator guide

Data is available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

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Open Peer Review

Current Peer Review Status: ✔ ✔ ? ?

Version 3

Reviewer Report 05 November 2024

https://doi.org/10.21956/openreseurope.20312.r45508

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✔ **Som Nath Ghimire**
Nepal Open University, Lalitpur, Nepal

Dear Authors,

Thank you for your attention to my previous comments and other reviewers' concerns. With this, I have no further concerns regarding your paper. However, I suggest that having your paper copyedited by a professional copyeditor would greatly improve its clarity and overall rigor. Congratulations and best wishes.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Higher education; technology in education; online and distance education; integrity; academic dishonesty; surveillance; discourse studies; gender studies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 28 October 2024

https://doi.org/10.21956/openreseurope.20312.r45507

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✔ **Fahriye Altinay**
Near East University, Northern Cyprus, Turkey

This is a good study to give insights on OER. I suggest authors to elaborate the following

statement in below that is stated parts of discussion.

`At the beginning of our study, we had assumed that, in crisis situations, OER would be a key resource for online ERT. But all indications are that this assumption as a starting point was not correct. That is, if OER were not even minimally present in the mental framework or current routines of teachers in normal situations before COVID-19 (as direct users, recyclers or creators), OER was unlikely to be considered in crisis situations.`

There should be strong argumentation by updated references how authors come up with this paragraph.

In addition to this, reasons of choosing this topic as the need for the study need to be addressed.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: online education, management, disability, strategic management, educational technology and quality

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 09 October 2024

https://doi.org/10.21956/openreseurope.19979.r44263

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Michelle Harrison
Thompson Rivers University, Kamloops, British Columbia, Canada

Overall, this study provides insight into OER adoption during ERT and highlights the needs for institutional support and guidance to improve awareness and help build the skills for faculty to adopt and adapt OER to their local context. The study provides additional insights into faculty/student use, and provides practical suggestions, consistent with the current literature, on how to overcome barriers to adoption and creation of OER in a global context. I have a few suggestions below on how to improve the clarity of the discussion and methodology sections. Just a note that there are some typos/grammatical errors throughout, and a repeated paragraph in the literature review (starting with “A systematic review by Otto et al).

Study design

Methodology section: I was looking for better alignment between the chosen qualitative approach and a theoretical framework. Content analysis is a qualitative method (not framework for analysis) so a few sentences in this section would be helpful. Interviews and focus groups are data collection techniques (I don't believe considered methodologies) – so these this needs to be clarified.

It was not clear how you came up with your general coding scheme – did the themes emerge through inductive coding, or were these overall themes identified previous to coding? Earlier you state you used inductive coding, but it was not clear based on your final paragraph in the methods section (it states that there were six thematic sections in the questionnaire). Perhaps add a sentence or two to clarify your approach.

Discussion

The discussion was not always clear. For example in the second paragraph I think your overall point was that across all five institutions, one factor, digital literacy (digital and computing competency), likely determined OER adoption/uptake, and that this uptake was generally quite low. This was not clearly stated, so a bit of rewording could strengthen your arguments.

Barriers to OER paragraph – provide a bit more detail about "legal uncertainty" – is this related to copyright? You don't mention legal uncertainty as a barrier within your results section – so perhaps unpack that more here to align with your findings (if appropriate).

"One of the guidelines recently established by UNESCO (2024) is in line with this need, as it promotes supporting and maintaining peer networks to share OER in different subjects and languages." – briefly outline what this guideline states for your readers.

Early in your discussion you indicate that OER uptake was low, and later indicate that there was limited readiness...but in the advantages section, you highlight how faculty and students indicate they are easy to reuse, adapt and access – can you add a bit of discussion about these contradictory overall results (perhaps highlight this in your discussion and/or conclusion sections).

There were a few typos (first paragraph "curses" should be "cases").

You could also refer to some of the institutional adoption of OER studies to help ground some of your recommendations in your conclusion.[1,2]
https://www.ecampusontario.ca/wp-content/uploads/2019/08/2019-08-07-skimore-oe-policy-report.pdf

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and Cancer-Associated Risk Factors.*Biomed Res Int*. 2015; **2015**: 293408 PubMed Abstract | Publisher Full Text

Is the work clearly and accurately presented and does it engage with the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Open educational practices, learning design, qualitative

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 16 Oct 2024

Cristóbal Urbano

Comment #0: *Overall, this study provides insight into OER adoption during ERT and highlights the needs for institutional support and guidance to improve awareness and help build the skills for faculty to adopt and adapt OER to their local context. The study provides additional insights into faculty/student use, and provides practical suggestions, consistent with the current literature, on how to overcome barriers to adoption and creation of OER in a global context. I have a few suggestions below on how to improve the clarity of the discussion and methodology sections. Just a note that there are some typos/grammatical errors throughout, and a repeated paragraph in the literature review (starting with "A systematic review by Otto et al).*

- RE: We are grateful for all the comments of reviewer Michelle Harrison, which help us to positively assess the relevance of the results obtained, while at the same time helping us to introduce some improvements or clarifications. The response to each of them is detailed below:

Comment #1: ***Study design.*** *Methodology section: I was looking for better alignment between the chosen qualitative approach and a theoretical framework. Content analysis is a qualitative method (not framework for analysis) so a few sentences in this section would be helpful. Interviews and focus groups are data collection techniques (I don't believe considered methodologies) – so these this needs to be clarified.*

- RE: Our study has been planned as a case study to obtain empirical evidence of the OER's use, and to gather experiences and opinions on the lessons learned. It could be said that our work is "deliberately agnostic" when it comes to theoretical frameworks on education. Further works devoted to theoretical studies could benefit of our empirical data. So that, we have corrected the denomination of Content analysis as "theoretical framework" to "qualitative method"; also, we changed the name of the section to "Materials and methods".

It was not clear how you came up with your general coding scheme – did the themes emerge through inductive coding, or were these overall themes identified previous to coding? Earlier you state you used inductive coding, but it was not clear based on your final paragraph in the methods section (it states that there were six thematic sections in the questionnaire). Perhaps add a sentence or two to clarify your approach.

- RE: Definitely, the specific themes (identified in Table 2 as Subcode) emerge through inductive coding. But all subcodes were nested on the go of coding inside 4 general themes linked to the areas where we have figured out our study could reach results: Adaptations, Problems, Advantages, Improvements/Lessons learned. We have rephrased the final paragraph.

Comment #2: ***Discussion.*** *The discussion was not always clear. For example in the second paragraph I think your overall point was that across all five institutions, one factor, digital literacy (digital and computing competency), likely determined OER adoption/uptake, and that this uptake was generally quite low. This was not clearly stated, so a bit of rewording could strengthen your arguments.*

- RE: We have changed the order of the sentences at the second paragraph, and we have changed the text to highlight the idea that "that teachers' previous experience with OER and the use of digital media in subjects more suited to them, constitutes a key differential factor in the level of use of OER during ERT."

Barriers to OER paragraph – provide a bit more detail about "legal uncertainty" – is this related to copyright? You don't mention legal uncertainty as a barrier within your results section – so perhaps unpack that more here to align with your findings (if appropriate).

- RE: Yes, it's about how to use any digital resource from the Net when the resources don't have clear CC licences. The link with Results sections is in the quote of one of the teachers [OJ_6] that said: "I had problems finding some of the materials and resources that I could use [...] I think we should have more repositories of OER and different digital materials that are available to use, so there are more in the public domain or licenced through Open Licencing by CC. And I think we should be more

open to sharing resources. We talk about open science and open education, but in practice we don't see it so much." To complement that quotation, we have added a sentence to present the issue of legal uncertainty.

"One of the guidelines recently established by UNESCO (2024) is in line with this need, as it promotes supporting and maintaining peer networks to share OER in different subjects and languages." – briefly outline what this guideline states for your readers.

- RE: We have added a sentence and a citation to state what does it mean for our readers, especially those in the LIS area.

Early in your discussion you indicate that OER uptake was low, and later indicate that there was limited readiness…but in the advantages section, you highlight how faculty and students indicate they are easy to reuse, adapt and access – can you add a bit of discussion about these contradictory overall results (perhaps highlight this in your discussion and/or conclusion sections).

- RE: Yes, teachers' statements are contradictory. From the ideal and theoretical perspective, they praise the OER possibilities and advantages, but their actual experience and behaviour does not match their mostly theoretical thoughts about advantages. We have added a sentence to stress that contradiction.

There were a few typos (first paragraph "curses" should be "cases").

- RE: Thank you. We have revised throughout the paper to check for typos, but in the case of the first paragraph, we keep "courses" as the sentence is about the process of adaption of the "courses" of the educational programmes when the pandemic broke out

Comment #3: ***Conclusion.*** *You could also refer to some of the institutional adoption of OER studies to help ground some of your recommendations in your conclusion.[1,2] https://www.ecampusontario.ca/wp-content/uploads/2019/08/2019-08-07-skimore-oe-policy-report.pdf.* References: 1. Cox G, Trotter H: Institutional Culture and OER Policy: How Structure, Culture, and Agency Mediate OER Policy Potential in South African Universities. The International Review of Research in Open and Distributed Learning. 2016; 17 (5): | Publisher Full Text / 2. Alvarez-Moya C, Reynoso-Silva M, Canales-Aguirre AA, et al.: Heterogeneity of Genetic Damage in Cervical Nuclei and Lymphocytes in Women with Different Levels of Dysplasia and Cancer-Associated Risk Factors. Biomed Res Int. 2015; 2015 293408 PubMed Abstract | Publisher Full Text

- RE: We believe that in the scope of the paper we have written, it does not make sense to include these references in the conclusion section. Indirectly, however, the suggestion that follows from the reviewer's comment is integrated in the 'Further directions' section of the paper. We have modified the wording on the conduct of a systematic literature review to include more explicitly works on institutional adoption of OER studies.

Competing Interests: No competing interests were disclosed.

Reviewer Report 25 September 2024

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Lancelord Siphamandla Mncube
University of South Africa, Pretoria, South Africa

Keywords
Some of the keywords, such as Emergency Remote Teaching (ERT) and Digital education are just imposed, and nothing is said about them in the text.

Introduction
The introduction needs to be captivating and focus on a substantiation of the chosen research interest, focus or problem.
The researchers need to identify a gap in existing research about the research interest, focus or problem in the study, as implied in the title. Studying "Assessment of the use of Open Educational Resources at five European Library and Information Science"- you need to put a reader on a clear picture of what studies have been conducted in LIS context based on OER. In so doing you will be in the position to identify existing gaps.
Researchers may succeed in substantiating the existence of the chosen research problem (i.e. the existing gap in research) through valid evidence obtained from recent literature.
Briefly outline of the problem exposing the reader to the problem you want to investigate. Here you deliberate on the phenomenon under investigation looking at what the literature says about it. In this section, you need to provide a global picture of what is happening under the topic that is being studied. For example, when writing about OER in LIS sectors ; you need to provide a discussion globally for example, choose at least 4 countries from the West including Asia (UeSA, UK, China, Africa, Brazil, India etc.). Thereafter discuss what is happening at the national levels (countries) including locally (the area where your study will be conducted).

Statement of the problem
At this stage, the study research problem is not well articulated. With the introduction and background as basis, discuss the research problem in no more than four full sentences. Make sure that the research problem directly links with the information contained in the preceding introduction and background. Convince readers that what you intend to investigate is a real problem and is worth researching.

Significance/value of the study
The OER topic is often associated with the field of Education. Therefore you need to create a

strong justification on how OER potential in the field of LIS. Briefly discuss the value that the proposed research will have for the study of science in general, the particular discipline(s) and/or field(s) of study within which the study is demarcated, as well as its value for relevant stakeholders (as applicable). In a nutshell, will this study make any contribution to national or international debates? Will it make any contribution in terms of theory (theory underpinning your study)?/impact within the disciplinary/interdisciplinary context; any contribution in stimulation further research?

Consider infusing Theoretical Frameworks underpinning the study.
Place the proposed research within an appropriate theoretical framework that will guide the study. What theory or theories underpin your study? (Provide relevant literature – in this case, you can use any relevant literature regardless of the date). Limit the number of theories to be used but dig dipper into the theories you have opted to use. You need this theory as you are formulating the research questions. At this stage is difficult to understand how your research question were formulated. You need the theoretical framework or conceptual framework when you are reviewing literature. In this paper, justice is not done concerning the review of literature. You will need this theoretical framework when discussing your results or doing the writing up.

Methodology
You need to articulate if ethical clearances were obtained from all involved institutions. Provide a summary of the measures that you will take to satisfy the generally accepted ethical requirements for research. How the following five aspects were addressed during the research process:

- Issues of privacy,
- Consent,
- Permission to conduct research etc.
- Confidentiality
- Voluntary participation
- Informed consent etc.

Findings
In this section, you provided a lot of quotations. You need to narrate your results. We want to hear your own voice when presenting results rather than imposing quotations. Presenting findings guided by the theoretical framework or conceptual framework always creates a better logic in this calibre of research.

Conclusion
Reframe the inclusion of citations in this section.

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

Are all the source data and materials underlying the results available?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 16 Oct 2024

Cristóbal Urbano

We welcome and appreciate all comments and suggestions for improvement from reviewer Lancelord Siphamandla Mncube. We consider some of them useful to introduce changes, while others are interesting, but we consider that the huge considerable changes associated with them will trigger a very different paper like a systematic review or a theoretical paper. It is with great pleasure that we upload a revised version 3 to cope with all the reviewers. ---------- The response to each comment is detailed below:
Comment #1: *Keywords.* *Some of the keywords, such as Emergency Remote Teaching (ERT) and Digital education are just imposed, and nothing is said about them in the text.*
Response: We have dropped the keyword “Digital education”, but we keep the keyword “Emergency Remote Teaching (ERT)”, as it is included in the section “OER global initiatives” at the “Introduction”. We have added more context and a citation to a flagship reference focused on that concept.

Comment #2: *Introduction.* *The introduction needs to be captivating and focus on a substantiation of the chosen research interest, focus or problem. The researchers need to identify a gap in existing research about the research interest, focus or problem in the study, as implied in the title. Studying “Assessment of the use of Open Educational Resources at five European Library and Information Science”- you need to put a reader on a clear picture of what studies have been conducted in LIS context based on OER. In so doing you will be in the position to identify existing gaps. Researchers may succeed in substantiating the existence of the chosen research problem (i.e. the existing gap in research) through valid evidence obtained from recent literature. Briefly outline of the problem exposing the reader to the problem you want to investigate. Here you deliberate on the phenomenon under investigation looking at what the literature says about it. In this section, you need to provide a global picture of what is happening under the topic that is being studied. For example, when writing about OER in LIS sectors ; you*

need to provide a discussion globally for example, choose at least 4 countries from the West including Asia (UeSA, UK, China, Africa, Brazil, India etc.). Thereafter discuss what is happening at the national levels (countries) including locally (the area where your study will be conducted).
Response: Some improvements have been made in the section "Main actors, context and scenarios of OER" to reinforce our view, expressed in that section, that the literature about OER use is uneven and with little-investigated empirical effects of use of OER (see Otto et al, 2021). Furthermore, it has to be considered that our work contributes to the literature with a case study not previously done about use of OER during the pandemic at LIS European institutions, through qualitative fieldwork using surveys and focus groups. It is not intended to be an exhaustive state of the art in the form of a literature review, as that would be another type of article. We believe that the Introduction builds on a sufficient body of previous work to show that there are few studies that have carried out concrete evaluations of the use of OER in the university environment, considering the actual opinions of teachers and students. The literature presented in the Introduction is complemented by that used in the Discussion of the results sections. In total, 54 references have been analysed, most of them specifically linked to the field of OER in university education during the pandemic. We think most of the things requested in this comment by the reviewer can be traced in our text devoted to discussing the results, and also in the Introduction.

Comment #3: ***Statement of the problem.*** *At this stage, the study research problem is not well articulated. With the introduction and background as basis, discuss the research problem in no more than four full sentences. Make sure that the research problem directly links with the information contained in the preceding introduction and background. Convince readers that what you intend to investigate is a real problem and is worth researching.*
Response: We have added new text to the section "Purpose and research questions" to give a more detailed idea of the statement of the problem.

Comment #4: ***Significance/value of the study.*** *The OER topic is often associated with the field of Education. Therefore you need to create a strong justification on how OER potential in the field of LIS. Briefly discuss the value that the proposed research will have for the study of science in general, the particular discipline(s) and/or field(s) of study within which the study is demarcated, as well as its value for relevant stakeholders (as applicable). In a nutshell, will this study make any contribution to national or international debates? Will it make any contribution in terms of theory (theory underpinning your study)?/impact within the disciplinary/interdisciplinary context; any contribution in stimulation further research?***Response:** We have added new text to the section "Purpose and research questions" to give a more detailed idea of the statement of the problem and the significance of the takeaways of the research outputs.

Comment #5: ***Consider infusing Theoretical Frameworks underpinning the study.*** *Place the proposed research within an appropriate theoretical framework that will guide the study. What theory or theories underpin your study? (Provide relevant literature – in this case, you can use any relevant literature regardless of the date). Limit the number of theories to be used but dig dipper into the theories you have opted to use. You need this theory as you are formulating the research questions. At this stage is difficult to understand how your research question were formulated. You need the theoretical framework or conceptual framework when you are reviewing literature. In this paper, justice is not done concerning the review of literature. You will need this theoretical framework when discussing your results or doing the writing up.*

Response: We think that infusing theoretical frameworks underpinning the study is beyond the purpose of our study, planned as a case study to obtain empirical evidence of the OER's use, and to gather experiences and opinions on the lessons learned. It could be said that our work is "deliberately agnostic" when it comes to theoretical frameworks on education. Further works devoted to theoretical studies could benefit of our empirical data.

Comment #6: ***Methodology.*** *You need to articulate if ethical clearances were obtained from all involved institutions. Provide a summary of the measures that you will take to satisfy the generally accepted ethical requirements for research. How the following five aspects were addressed during the research process: Issues of privacy / Consent / Permission to conduct research etc. / Confidentiality / Voluntary participation / Informed consent etc.***Response:** Before the publication of the preprint version, Open Research Europe (ORE) editorial managers checked all the requirements for the manuscript, to which the reviewer refers in this comment. If the manuscript has finally been disseminated in ORE, it is because the requirements have been met. Detailed information on this can be found in the 'Methodology' section of the paper (now renamed as "Materials and methods").
Response: Moreover, the key information about these requirements is repeated in the statement under the "Ethics and consent" section at the end of the paper: "In compliance with the COREQ guidelines for interviews and focus groups, our research prioritized ethical considerations. Written informed consent was diligently obtained, ensuring participants understand the study's purpose. Stricter measures, including interviewees quotations anonymization at the results outputs and secure data storage, were implemented to guarantee confidentiality. The design of the study, as well as the process of data collection and its safekeeping, was approved, on 2021-11-05 by the Bioethics Commission of the University of Barcelona (CBUB) [Institutional Review Board (IRB00003099) http://www.ub.edu/comissiobioetica/en], as the Barcelona team led the IO-2 work package of the DECriS Project."

Comment #7: ***Findings.*** *In this section, you provided a lot of quotations. You need to narrate your results. We want to hear your own voice when presenting results rather than imposing quotations. Presenting findings guided by the theoretical framework or conceptual framework always creates a better logic in this calibre of research.*
Response: : The outputs of our work, for the sake of the clarity of our text, are presented in two consecutive and related sections. First, "Results" as a reasoned inventory of the main situations and experiences with OER derived from actual quotations captured at the interviews and focus groups with the participants. Every set of quotations is framed with a narrative comment and a headline of the issue/idea involved. Second, in the "Discussion" section we go deeper in the presentation of finding with our voice, but with the contrast with other works from the literature on the issue. In the "Results" section, we followed our agnostic and inductive approach to read and interpret the transcriptions to give the voice to the participants. In the "Discussion" section, it was the time for us as researchers to use our own voice to present results.

Comment #8: ***Conclusion.*** *Reframe the inclusion of citations in this section.*
Response: We believe that the very few citations that appear (only 3) in this section are necessary for a correct understanding of what is mentioned in the paragraphs in which they are present.

Competing Interests: No competing interests were disclosed.

Reviewer Report 17 September 2024

https://doi.org/10.21956/openreseurope.19979.r44073

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Som Nath Ghimire
Nepal Open University, Lalitpur, Nepal

Comments to the authors

Thank you for substantially revising the earlier version of your paper to address my previous comments. The improvements you have made have now significantly strengthened the clarity and readability of the paper and its contribution to the field under research scrutiny.

1. The revised title now aligns well with your research objectives and reflects the study's data and scope.
2. The introduction and literature review sections have been significantly improved with recent publications, providing a solid foundation for your study. These updates have provided a well-furnished background, particularly concerning OER concepts and practices in higher education.
3. The research gap, study objectives, and key contributions are now clearly articulated. The revisions have added considerable depth to the paper's relevance in the research area under scrutiny.
4. Thank you for clarifying participant profiles in the methodology and analysis sections.
5. The critical interpretation of your findings in the discussion section has significantly improved the rigor of your line of reasoning vis-à-vis higher education students' and faculties' perceptions and experiences of OER practices.
6. The inclusion of introductory paragraphs summarizing the authors' observations and overall findings has now offered a clear overview of gaps in OER implementation and your paper's contribution to OER practices in higher education.
7. Thank you for clarifying the scope of OER in the conclusion. Your distinction between the decline of "canonical" OER and the growing use of diverse open-access resources has both improved the relevance of your findings and offered a beautiful insight into the understanding of current trends of OER practices (which suggests the required revisions in canonical concepts of OER).
8. The addition of the "Further Directions" section has outlined future research projections and provides a clear pathway for continued scholarly conversations around OER concepts and practice.

Overall, the current version of the paper is much improved as a result of the above revisions made by the authors. However, I have observed that there are some minor slips in the paper (only a few of them are detailed at the end of this report since detailing each of them would be quite

exhaustive), subject to correction. Along with these comments, I would also like to suggest that the authors get their paper sincerely copyedited to effectively convey the overall message of their work.

1. Please insert a period as it is missing at the end of the second paragraph of your theme **" OER global initiatives**".
2. Please remove one of the following paragraphs as it appears twice under the theme **"Main actors, contexts and scenarios of OER"**: " A systematic review by Otto *et al*. (2021) reported about the little-investigated empirical effects of the use of OER on established pedagogical approaches. Nevertheless, several studies have been identified on the faculty's perspective regarding general awareness of OER (Biernat *et al*., 2021; Christoforidou & Georgiadou, 2021; Watermeyer *et al*., 2021) and their attitudes to OER use (Karataş *et al*., 2022; Otto, 2022; Sunar *et al*., 2022). Regarding the students' view, apart from a few projects that focused on their perceptions of the usefulness of OER (Arcebuche, 2022; Cheung *et al*., 2022), most have centred primarily on the students' attitudes towards technological change in education (Aguilera-Hermida, 2020; Händel *et al*., 2022)."
3. Please adjust the following sentence in the literature that appears in the second paragraph of your theme **"Main actors, contexts and scenarios of OER" :** " Otto *et al*. (2021) provided evidence that the research on OER had been, mainly, located in North America"
4. Period is missing at the end of the third paragraph of your theme **"Main actors, contexts and scenarios of OER"**
5. I suggest that the authors revise and reorganize the content in this section based on their theme since the contents in their current form seem a little mismatched and the arguments do not appear coherent.

Finally, I would like to congratulate the authors for their significant and valued contribution to existing knowledge about OER practices, their opportunities, and challenges in higher education.

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Higher education; technology in education; online and distance education; integrity; academic dishonesty; surveillance; discourse studies; gender studies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 16 Oct 2024

Cristóbal Urbano

We would like to thank reviewer Som Nath Ghimire for the helpful new comments and suggestions for the improvement of our manuscript version 2. It is with great pleasure that we upload a revised version 3 to address new comments. The response to each of them is detailed below:

Reviewer Comment #0: *Thank you for substantially revising the earlier version of your paper to address my previous comments. The improvements you have made have now significantly strengthened the clarity and readability of the paper and its contribution to the field under research scrutiny. [...] Finally, I would like to congratulate the authors for their significant and valued contribution to existing knowledge about OER practices, their opportunities, and challenges in higher education.*

- **Author response:** We appreciate the reviewer's words acknowledging the appropriateness of the changes made in version 2 compared to version 1 to address their initial comments, alongside his congratulation to the significance of our contribution to the evidence-informed debate on the use of OER.

Reviewer Comment #1: *Please insert a period as it is missing at the end of the second paragraph of your theme **"OER global initiatives**".*

- **Author response:** Done

Reviewer Comment #2: Please remove one of the following paragraphs as it appears twice under the theme **"Main actors, contexts and scenarios of OER"**: " A systematic review by Otto *et al*. (2021) reported about the little-investigated empirical effects of the use of OER on established pedagogical approaches. Nevertheless, several studies have been identified on the faculty's perspective regarding general awareness of OER (Biernat *et al*., 2021; Christoforidou & Georgiadou, 2021; Watermeyer *et al*., 2021) and their attitudes to OER use (Karataş *et al*., 2022; Otto, 2022; Sunar *et al*., 2022). Regarding the students' view, apart from a few projects that focused on their perceptions of the usefulness of OER (Arcebuche, 2022; Cheung *et al*., 2022), most have centred primarily on the students' attitudes towards technological change in education (Aguilera-Hermida, 2020; Händel *et al*., 2022)."

- **Author response:** Done.

Reviewer Comment #3: *Please adjust the following sentence in the literature that appears in the second paragraph of your theme **"Main actors, contexts and scenarios of OER" :** " Otto et al. (2021) provided evidence that the research on OER had been, mainly, located in North America"*

- **Author response:** Adjusted with a new scope of the sentence, pointing out that research and debate mainly located in the USA is about Open textbooks.

Reviewer Comment #4: *Period is missing at the end of the third paragraph of your theme*

"Main actors, contexts and scenarios of OER"

- **Author response:** Done

Reviewer Comment #5: *I suggest that the authors revise and reorganize the content in this section based on their theme since the contents in their current form seem a little mismatched and the arguments do not appear coherent.*

- **Author response:** We have modified the first paragraph of the section 'Main actors, contexts and scenarios of OER' to give more consistency to the narrative that constitutes the thread of the section. Furthermore, we have moved the previous last paragraph to the next section "Purpose and research questions" as it helps to introduce what we have done in our study. Now, the actual last paragraph of the "Main actors..." section serves to close the literature contextualization we used to outline the purpose of our research.

Competing Interests: No competing interests were disclosed.

Version 1

Reviewer Report 02 July 2024

https://doi.org/10.21956/openreseurope.18866.r41596

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?

Som Nath Ghimire
Nepal Open University, Lalitpur, Nepal

First of all, I would like to congratulate the authors for their contribution to the literature associated with Open Educational Resources (OER), which warrants a continued examination in higher education. I am particularly interested in reviewing this paper to know to what extent the COVID-19 pandemic prompted the wider understanding, creation, and implementation of Open Educational Resources in Library and Information Science (LIS) within higher education institutions in the countries under the study scrutiny. Having reviewed the paper, I suggest improvements in the following areas so that the rigor of the paper could be significantly strengthened.

1. Reconsider the title of the paper since the significant data collected and utilized are related to the faculty members' and students' narratives and reflections on OER implementation during the COVID-19 contexts although the respondents were interviewed during the post-pandemic situation.
2. Both the introduction and literature review sections would further benefit if the authors could substantially revise these sections with updated literature in the area under scrutiny.
3. In so doing, please review past and recent literature that principally agrees with the widely accepted definition of OER rather than solely relying on UNESCO's (2019) definition.

Consider, if there are any disagreements regarding the concept of OER over the years.

4. The review section is poorly written and the line of reasoning for the current research is less than satisfactory. Please consider critically reporting the theoretical arguments and empirical research findings to set the broader context for the current research under scrutiny. This section could further benefit if the authors focus on reviewing literature in the areas associated with their research questions so that it would logically connect with the findings and discussion section.Â Moreover, the literature section seems to have abruptly ended, which looks very odd. I suggest that the authors summarize the literature review in a short paragraph and show the research gap that warrants further examination.
5. In the methodology section, I wonder why the authors have not considered it important to give information about the participants, whether all of them belong to Library and Information Science or different departments. Unclarity about the details could further mislead the readers since the title of the paper and abstract are centered around this information. It is equally absent in the analysis section though the authors have mentioned this information in the discussion and conclusion section that the participants belonged to LIS. Â
6. In the findings and analysis section, the paper could further benefit from a critical interpretation of data, which the paper hugely lacks in its current form. Also, I believe that the inverted commas in the quotes should be removed with the indentation the journal requires.
7. Equally important concerns for me are that since the research has been 'based on fieldwork carried out in the LIS departments of the universities of Barcelona (Spain), Hildesheim (Germany), Osijek and Zagreb (Croatia) and the University of Library Studies and Information Technologies in Sofia (Bulgaria)', there might be different experiences and perception of faculties and students toward OER based on their contexts. If authors have something interesting to share (probably not reported in the available literature as well as that has not been highlighted with clarity (compare and contrast) in the current study), I would encourage the authors to equally highlight these findings and discuss them. I believe that it would have a greater implication in the literature as well as guide future debates in the area.

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

Are all the source data and materials underlying the results available?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Higher education; technology in education; online and distance education; integrity; academic dishonesty; surveillance; discourse studies; gender studies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Jul 2024

Cristóbal Urbano

We the authors greatly appreciate the reviewers' comments and time. Based on their suggestions, we will answer the reviewer's observations and revise our paper over the next few weeks to submit a new, corrected version. Some of the team members involved in this paper will be on holiday for a few weeks, so it will take some time. Thank you for your patience. Sincerely, Cristóbal Urbano, corresponding author

Competing Interests: No competing interests were disclosed.

Author Response 28 Aug 2024

Cristóbal Urbano

We would like to thank reviewer 2 for the helpful comments and suggestions on our manuscript. It is with great pleasure that we upload a revised version. The response to each comment is detailed below, together with the changes we have made to version 2 of the paper where appropriate (new text can be seen through the tracked changes):

- **Comment #0:** *First of all, I would like to congratulate the authors for their contribution to the literature associated with Open Educational Resources (OER), which warrants a continued examination in higher education. I am particularly interested in reviewing this paper to know to what extent the COVID-19 pandemic prompted the wider understanding, creation, and implementation of Open Educational Resources in Library and Information Science (LIS) within higher education institutions in the countries under the study scrutiny.*

RE: We appreciate very much this general introductory comment, where the reviewer states the relevance of the issue of critical assessments on OER use during COVID-19 pandemic, that in our opinion has not received the attention it deserves in the literature on Emergency Remote Teaching (ERT) during the pandemic. OER are the subject of much theoretical and descriptive literature analysing their characteristics and potential, promoting its use from a decontextualized perspective without considering the barriers and challenges to its adoption, but assessment of their actual use in university education falls short of expectations. This is one of the most interesting and surprising evidences resulting from our study of the COVID-19 period, which strongly suggested that their actual use was low and unsystematic, even in what seemed to be a very favourable situation such as the ERT. Hence, the reflections that teachers and students expressed a posteriori on this

situation are relevant for detecting barriers and conditioning factors on which to act in the future for a more profitable use of the OER, as well as a greater involvement of teachers in their creation.

- **Comment #1**: *Reconsider the title of the paper since the significant data collected and utilized are related to the faculty members and students narratives and reflections on OER implementation during the COVID-19 contexts although the respondents were interviewed during the post-pandemic situation.*

RE: Since our study is related to both periods, COVID-19 (the focus of RQ 1 and RQ2) and Post COVID (RQ3) we have modified the paper title to clearly state we will deal with both periods. New title for version 2: Assessment of the use of Open Educational Resources at five European Library and Information Science higher education institutions **during and post COVID -19 pandemic**

- **Comment #2:** *Both the introduction and literature review sections would further benefit if the authors could substantially revise these sections with updated literature in the area under scrutiny.*

RE: We have updated the literature by searching more recent publications on our main topics. We have identified six references that provide some new ideas or approaches, which we have added in our literature review and discussion sections.

- **Comment #3:** *In so doing, please review past and recent literature that principally agrees with the widely accepted definition of OER rather than solely relying on UNESCO's (2019) definition. Consider, if there are any disagreements regarding the concept of OER over the years.*

RE: While there is no single definition of OER, the most recent UNESCO definition -included in the UNESCO OER Recommendation- is widely accepted: "OER are teaching, learning and research materials that make use of appropriate tools, such as open licensing, to permit their free reuse, continuous improvement and repurposing by others . . . " (Miao, Mishra, & Orr, 2019, p. 9). We have also reviewed some recent articles about OER and all of them used the same definition. That is why we have added it to the introduction. Also, we have linked the delineation of what defines an OER to a mention in the Conclusions Section, contextualising the low use of OER among our study participants.

- **Comment #4:** *The review section is poorly written and the line of reasoning for the current research is less than satisfactory. Please consider critically reporting the theoretical arguments and empirical research findings to set the broader context for the current research under scrutiny. This section could further benefit if the authors focus on reviewing literature in the areas associated with their research questions so that it would logically connect with the findings and discussion section. Moreover, the literature section seems to have abruptly ended, which looks very odd. I suggest that the authors summarize the literature review in a short paragraph and show the research gap that warrants further examination.*

RE: We have modified the literature review section to clarify the line of reasoning of the current research. Firstly, as we discussed above, we have updated the literature review with some recent publications that we identified on our main research topics. We have also structured the section, covering from global OER implementation initiatives to the specificity and key/differential areas of our contribution, i.e. a case of 5 higher education institutions in the discipline of Library and Information Science and Europe (as thematic and spatial context) and the teaching staff and students (as main actors).

- **Comment #5:** *In the methodology section, I wonder why the authors have not considered*

it important to give information about the participants, whether all of them belong to Library and Information Science or different departments. Unclarity about the details could further mislead the readers since the title of the paper and abstract are centered around this information. It is equally absent in the analysis section though the authors have mentioned this information in the discussion and conclusion section that the participants belonged to LIS.

RE: We have clarified now that all interviewees (faculty and students) were from LIS Department/Faculty also in the Methodology and Analysis sections, as it has been suggested.

- **Comment #6:** *In the findings and analysis section, the paper could further benefit from a critical interpretation of data, which the paper hugely lacks in its current form. Also, I believe that the inverted commas in the quotes should be removed with the indentation the journal requires.*

RE: Within the Discussion section, further critical interpretation of the data has been added, in order to connect the findings with other observed trends or recently emerging guidelines. As for the inverted commas, since we have followed all the editorial indications of ORE (and also performed at the final published versions by editing services from ORE), which has not indicated anything specific in this regard, we keep the text as it was - unless ORE expresses any new requirement.

- **Comment #7:** *Equally important concerns for me are that since the research has been based on fieldwork carried out in the LIS departments of the universities of Barcelona (Spain), Hildesheim (Germany), Osijek and Zagreb (Croatia) and the University of Library Studies and Information Technologies in Sofia (Bulgaria), there might be different experiences and perception of faculties and students toward OER based on their contexts. If authors have something interesting to share (probably not reported in the available literature as well as that has not been highlighted with clarity (compare and contrast) in the current study), I would encourage the authors to equally highlight these findings and discuss them. I believe that it would have a greater implication in the literature as well as guide future debates in the area.*

RE: In general, as far as the use of OER is concerned, the situation in the institutions with similar disciplinary traditions had similar characteristics. It is worth noting the differential case of Hildesheim (Germany) whose more digital orientation and specialisation in postgraduate course would explain a more intense and consolidated use of OER before COVID-19. But in general, for similar academic subjects, we have not actually identified many different perceptions of faculty and students towards OER depending on their context. In any case, for all the five institutions, the more digital oriented was the academic subject or the teacher background, the more likely OER could have some presence during the ERT and beyond. We have noted this adding a new text at the beginning of the Discussion Section.

Competing Interests: No competing interests were disclosed.

Reviewer Report 13 May 2024

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Fahriye Altinay
Near East University, Northern Cyprus, Turkey

Paper`s title mentions the period of post covid 19 assessment but in the research questions first two of them are related to covid 19 period. Authors should state clear time period in relation to the focus of the study.

Significance of the study as a need for the study should be stated by updated references and it is essential to put importance to the key terms that makes this study different from others.

Results can be categorized based on research questions. Themes and codes can be created in the analysis in order to be more clarified in relation to the research focus.

Future projections and suggestions should be added for both research areas and researchers.

Is the work clearly and accurately presented and does it engage with the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

Are all the source data and materials underlying the results available?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: online education, management, disability, strategic management, educational technology and quality

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 08 Jul 2024

Cristóbal Urbano

We the authors greatly appreciate the reviewers' comments and time. Based on their suggestions, we will answer the reviewer's observations and revise our paper over the next few weeks to submit a new, corrected version. Some of the team members involved in this paper will be on holiday for a few weeks, so it will take some time. Thank you for your patience. Sincerely, Cristóbal Urbano, corresponding author

Competing Interests: No competing interests were disclosed.

Author Response 28 Aug 2024

Cristóbal Urbano

We welcome all comments and suggestions for improvement from reviewer 1. We consider them useful, and it is with great pleasure that we upload a revised version. The response to each comment is detailed below, together with the changes we have made to version 2 of the paper where appropriate (new text can be seen through the tracked changes):
Comment #1: *Papers title mentions the period of post covid 19 assessment but in the research questions first two of them are related to covid 19 period. Authors should state clear time period in relation to the focus of the study.* **RE:** Since our study is related to both periods, COVID-19 (the focus of RQ 1 and RQ2) and Post COVID-19 (RQ3), we have made a slight modification of the paper title to clearly state we will deal with both periods, like it is also stated in the abstract. New title for version 2:

- Assessment of the use of Open Educational Resources at five European Library and Information Science higher education institutions **during and post COVID -19 pandemic**

Comment 2#: *Significance of the study as a need for the study should be stated by updated references and it is essential to put importance to the key terms that makes this study different from others.*
RE: We have updated references by searching new publications on OER use and LIS during COVID-19 period (and post-pandemic) at the European context on OER assessment, the key and differential focus of our study. We have identified a few articles, from 2023 and 2024, that provide some ideas or approaches which we have added in our literature review and discussion sections.
Comment 3#: *Results can be categorized based on research questions. Themes and codes can be created in the analysis in order to be more clarified in relation to the research focus.* **RE:** The themes and codes presented in our study (and collected in Table II) are aligned with the general objectives of the DECriS project. Therefore, they are part of a broader study and have been designed from the same questionnaire script and from a first general analysis of the data, which considered a wide range of topics. For this reason, the coding was created in a general way and is not only categorized into OER research topics. As we consider that it is not appropriate to change the coding once the analysis is complete but, at the same time, we want to clarify the issue for readers (as the reviewer has pointed out) we have added a new paragraph in the Methodology section and we have adjusted Table II with tags in the first column to clarify. With this pair of changes, we aim to point out the connections

between the general codes and our research themes and questions. We hope that this solution clarifies this issue.
Comment 4#: *Future projections and suggestions should be added for both research areas and researchers.*
RE: Since we agree to that proposal, we have added a final paragraph about further research on the issue of OER use.

Competing Interests: No competing interests were disclosed.