Challenges for finding Language OER: Suggestions to Repositories' Administrators

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Abstract

As the world becomes increasingly globalized, open, interconnected, multicultural, and multilingual it is extremely useful to speak many languages. Language Open Educational Resources (OER) can enhance international collaboration and equal access to language learning. This paper pictures the state of OER for teaching & learning English, French, German, Italian, Portuguese, and Spanish in major Repositories of OER (ROER). In general, it is not an easy task to find appropriate language OER for specific language and educational objective. Most ROER curate OER for teaching & learning the English as a foreign language. Also, most ROER mainly curate small pieces and parts of educational material than complete courses and textbooks. Furthermore, OER metadata do not provide information regarding the language skills. Then the paper suggests to ROER administrators the development of common standards for OER metadata, OER quality assurance, ROER organization, and e- communities of OER curators, creators, and teachers as well as training and awarding them.

Keywords: Language OER, OER, Open Education Resources, Metadata, Open Standards, Persistent Identifier, PID, Repositories of OER, ROER, Training.

1 Introduction

International travel, education, trade, business, careers, relations, friendships, and more drive the need to interact and communicate in multiple languages. In European Union (EU), European Commission (2020) strongly promotes multilingualism and the harmonious co-existence of 24 official languages. Multilingualism is "the ability of societies, institutions, groups and individuals to engage, on a regular basis, with more than one language in their day-to-day lives" (European Commission, 2007). The EU's multilingualism policy aims at enabling every EU citizen to learn at least two foreign

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languages (in addition to their mother tongue). According to the European Parliament (2017), the most widely spoken foreign languages in the EU are English (38%), French (12%), German (11%), and Spanish (7%). Also, the most useful foreign languages in the EU are English (67%), German (17%), French (16%), Spanish (14%), Chinese (6%), and Italian (5%).

In parallel, European Commission is committed to Opening up Education (2020) by supporting Open Educational Resources (OER). According to Creative Commons (2020), OER are educational materials that are either in the public domain or licensed in such a way that everyone is free to Retain, Reuse, Revise, Remix, and Redistribute them. Recently, Economides & Perifanou (2018) proposed the Open FASUCICESA – CPT framework that describes OER as educational resources that anyone freely and openly can Find, Access, Store, Use, Create, Interact, Collaborate, Evaluate, Share, and Abandon them without any Cost, at any Place and any Time.

Previous studies found that OER could both improve student learning and reduce the cost of educational resources (e.g., Bliss et al., 2013; Colvard, Watson & Park, 2018; Fischer et al., 2015; Hilton, 2016, 2019; Kosmas et al., 2021; Lovett, Meyer, & Thille, 2008; Martin et al., 2017).

OER for language teaching and learning enable international collaboration (Blyth, 2012; Rossomondo, 2011; Sabadie et al., 2014) and equal access to learning irrespectively of economic situation. However, it seems that the English language occupies a predominant role in OER (Karakaya & Karakaya, 2020; Rets et al., 2020; Wang & Towey, 2017). Therefore, more research and initiatives are needed so that less dominant languages become more visible (Berti, 2018). This paper tries to picture the landscape of dominant European languages OER in major Repositories of OER (ROER).

The next section 2 identifies well-known Repositories of OER that also curate OER for language teaching and learning. Then section 3 locates Language OER in these well-known ROER for the most frequently spoken languages in Europe and describes difficulties in locating them. Section 4 make suggestions for ROER improvement. Finally, section 5 concludes and suggests directions for future research.

2 Well-known Repositories of OER (ROER)

In order to identify reputable ROER that are popular and contain OER for language teaching & learning, this study investigated the websites of tenths of university libraries that suggest such ROER. The investigation was restricted to websites in English since the authors are fluent in English and the most advanced library websites are in universities that use English as the teaching language. More than one hundred ROER were identified. After extensive exploration of these ROER, the following ROER that contain Language OER were selected based on their reputation:

COERLL: https://www.coerll.utexas.edu/
Curriki: https://library.curriki.org/
Directory of Open Educational Resources (DOER): http://doer.col.org/
MERLOT: https://www.merlot.org/merlot/
MIT OpenCourseWare (OCW): https://ocw.mit.edu/index.htm
Openly Available Sources Integrated Search (OASIS): https://oasis.geneseo.edu/
OER Commons: https://www.oercommons.org
OpenLearn: htps://www.open.edu/openlearn/
Open Textbook Library: https://open.umn.edu/opentextbooks/

COERLL, the Center for Open Educational Resources and Language Learning, develops and shares Language OER (e.g., online language courses, reference grammars, assessment tools, corpora) in the following languages: Arabic, Bangla, Chinese, Czech, English, French, German, Hebrew,

Hindi, Italian, Japanese, K'iche', Malayalam, Nahuatl, Persian, Portuguese, Russian, Sanskrit, Spanish, Tamil, Turkish, Urdu, and Yoruba. It organizes events for open language education, funds projects for Language OER and language teacher professional development, publishes textbooks and more. It supports the Language OER Network (LOERN), a community of Language OER teachers, creators, reviewers and ambassadors.

Curriki mainly concerns K-12 US teachers, students, and parents. CurrikiLibrary offers OER for curriculum, lesson plans, apps, ebooks, full courses, games, slides, video etc. CurrikiStudio is an authoring tool for creating interactive educational material. It allows any non-technical user to quickly create active, digital learning experiences, via interactive video and voice, game experiences, simulations and more. CurrikiGo enables one-button publishing educational content to most major eLearning platforms.

Directory of Open Educational Resources (**DOER**) was developed by the Commonwealth of Learning's (COL) to enable teachers to simultaneously search more than 200 ROER.

Multimedia Education Resource for Learning and Online Teaching (MERLOT) supports teachers and students all over the world. Many of its OER are reviewed (by editors, peers or users) and have Creative Commons (CC) licenses. It provides information for over 3,000 World Languages materials such as animations, assessment tools, assignments, drill & practices, e-portfolios, online courses, journal articles, presentations, simulations, tutorials etc. It provides OER in the following languages (with the number of OER): Arabic (101), Chinese (215), ESL or EFL (647), French (510), German (178), Greek (34), Hebrew (63), Italian (51), Japanese (109), Korean (22), Latin (62), Less Commonly Taught Languages (211), Multilingual Resources (202), Portuguese (181), Russian (66), Spanish (488).

MIT OpenCourseware (OCW) supports higher education (undergraduate and postgraduate) all over the world for 20 years. It offers openly to educators, students, self-learners, and professionals all MIT course content. It offers materials from over 2500 open courses and open textbooks. Currently, there are 160 courses with full video, 234 courses and supplemental resources with instructor insights and 432 mirror sites worldwide. Most visitors come from US and India. Visitors from UK, China, and Canada follow. Currently, MIT OCW provides links to approximately 300 translated courses into Traditional Chinese, Turkish, Korean and other languages. MIT Global Languages (21G) part of MIT's "Global Classroom" offers classes in nine different languages and cultures to prepare learners to live and work in the diverse and multilingual context of a globalizing world.

Openly Available Sources Integrated Search (OASIS) developed by COL searches for OER in 117 different ROER (e.g., Library of Congress, Project Gutenberg, OpenStax, CNX, DOAB, Arabic Collections Online, OAPEN). It searches among 388,707 OER such as textbooks, courses, audiobooks, videos, podcasts, interactive simulations, modules, etc. in a variety of subjects. Some of the OER have Creative Commons (CC) licenses and reviews.

OER Commons developed by the Institute for the Study of Knowledge Management in Education (ISKME) in California contains over 43,000 OER in more than 80 languages. These OER are of various material types such as Activity/Lab (11,490), Assessment (2,984), Diagram/Illustration (2,312), Full Course (1,997), Homework/Assignment (2,054), Interactive (2,156), Lecture (5,600), Lessons (2,580), Lesson Plan (9,167), Module (3,247), Simulation (606), Syllabus (983), Textbook (2,112), Unit if Study (1,768), etc. There also 3,065 English Language Arts (including 1,175 CCSS Aligned English Language Arts) OER, and 1,777 Languages OER. The OpenAuthor enables authors to create and publish OER. Groups enable public or private communities of teachers and experts to organize, create, collaborate, share, and discuss resources.

OpenLearn supported by The Open University at U.K. offers over 1,000 free courses across eight subject areas. The courses also include videos, audios, interactives, quizzes, etc. On successful completion of a free course, the learner can access and download a free statement of participation to use alongside a digital badge (if the course offers one). Most courses have a Creative Commons (CC) license and reviews. There are 79 language courses (44 introductory, 14 intermediate, 15 advanced)

with 67 language e-books for learning the following languages: Chinese, English, French, Gaelic, German, Italian, Spanish, and Welsh.

Open Textbook Library at the University of Minnesota offers more than 700 peer-reviewed open textbooks to be freely used, adapted, and distributed. Around 60% of books have been reviewed. All textbooks are licensed with GNU and Creative Commons (CC) licenses. There are about 50 language textbooks.

The next section records the number of Language OER for the most spoken languages in Europe in these well -known ROER.

3 Language OER in well-known ROER

According to Ethnologue (2020), the European languages that are spoken by the most people worldwide are as follows: English (1,268 million), Spanish (538 million), French (277 million), Portuguese (252 million), German (132 million), and Italian (68 million). The following Tables 1 and 2 provide the number of OER for teaching & learning English, French, German, Italian, Portuguese and Spanish (in alphabetical order) as a foreign language in well-known ROER on February 2021 and May 2021.

OER Repositories	English	French	German	Italian	Portuguese	Spanish
COERLL	0	7+5	4+4	1+2	7+1	16+4
Curriki	81 1	7	3	3	1	35
DOER	1,176	30	17	8	3	12
MERLOT	647	509	178	51	181	487
MIT OCW	7	15	9	1	5	13
OASIS	44	3	5	5	2	9
OER Commons	292	169	126	8	12	302
OpenLearn	22	10	8	3	0	9
Open Textbook Library	3	7	2	3	2	3

Table 1: The total number of Language OER in well-known Repositories on February 2021

The number of OER in every ROER changes day-by-day. In each ROER, OER curators and authors upload new OER and/or OER metadata, modify existing OER and/or OER metadata, or even delete obsolete OER and OER metadata. OER may become obsolete due to changes in technology (e.g., Adobe Flash Player has been disabled by default), society and economy (e.g., information on per capita incomes, unemployment rates, trade treaties), environment (e.g., information on climate, deforestation), education and pedagogy (e.g., student-centered, collaborative), science, etc. For

example, most ROER administrators and managers have removed Flash-based OER since Adobe no longer supports Flash Player and blocks Flash content from running in Flash. So, another detailed investigation of these ROER on May 2021 gave the results of Table 2.

OER Repositories	English	French	German	Italian	Portuguese	Spanish
COERLL	0, 0, 0, 0.	12, 2, ? 1.	8, 1, ? ?	3, ? ? ?	8, 1, ? ?	19, 1, ? 3.
Curriki	811, 137, 20, 37.	7, 3, 0, 0.	3, 0, 0, 0.	3, 1, 0, 0.	1, 0, 0, 0.	35, 14, 0, 1.
DOER	137, 25, 31, 1.	8, 1, 8, 0.	5, 0, 5, 0.	4, 0, 4, 0.	2, 0, 2, 0.	9, 2, 9, 0.
MERLOT	647, 50, 23, 7.	510, 21, 23, 26.	178, 13, 12, 7.	51, 10, 4, 0.	181, 6, 6, 0.	488, 44, 22, 7.
MIT OCW	7, 0, 7, ?	15, 0, 15, ?	9, 0, 9, ?	1, 0, 1, ?	5, 0, 5, ?	13, 0, 13, 2.
OASIS	20 8, 16, 0.	3, 0, 3, 0.	0, 0, 0, 0.	2, 0, 2, 0.	1, 1. 1, 0.	3, 1, 3, 0.
OER Commons	440, 29, 15, 34,	200, 4, 4, 15.	72, 2, 3, 0.	12, 4, 2, 3.	11, 4, 1, 1.	288, 9, 4, 9.
OpenLearn	166, 20, 22, ?	54, 8, 10, ?	48, 7, 9, ?	16, 2, 3, ?	0, 0, 0, 0.	41, 9, 13, ?
Open Textbook Library	5, 5,	7, 7,	2, 2,	3, 3,	2, 2,	3, 3,

| 0, | 0, | 0, | 0, | 0, | 0, |
| 0. | 0. | 0. | 0. | 0. | 0. |

Table 2: Metrics for each language: Total number of OER, number of Textbooks, number of Courses, number of Quizzes/ Tests/Assessments in well-known Repositories on May 2021. "?" = information is not available.

In most ROER, there are more OER for teaching & learning English than any other language. Next, they come OER for teaching & learning French or Spanish. Finally, there are much fewer OER for teaching & learning German or Italian or Portuguese.

In several ROER (e.g., Curriki, MERLOT, OER Commons), most of the Language OER are not Open Courses or Textbooks which constitute integrated complete educational resources. On the contrary, there are various pieces and parts of a course (e.g., module, lesson, assignment, diagram). It would be difficult for a teacher or learner to put these pieces in coherence. Finally, another problem is the lack of appropriate metadata to describe the basic language skills (i.e., Reading, Listening, Writing, and Speaking) as well as Grammar and Syntax. For example, if a user is looking for OER to learn Spanish Grammar, it would be difficult to locate such OER. The user should manually explore all OER for teaching & learning Spanish in order to find educational material for Spanish Grammar.

There are also many difficulties in finding appropriate Language OER in these ROER (Perifanou & Economides, 2021a). Each ROER has a different structure and organization of OER, different metadata description of OER as well as different ways for searching and browsing OER. Search engines in most ROER do not provide accurate search results and a manual filtering of the results is needed. Furthermore, information in many OER metadata is missing or is not accurate. For example, some links point to dead end (broken links, page not found) or even to wrong pages; some OER are described as Language OER but the language refers to computer programming languages (e.g., C++, Java); some resources are not really open, etc.

In many ROER, there are various subjects and topics per subject to describe OER creating a confusion regarding the most suitable reference to this OER. For example, OER Commons categorize English Language OER under various tags such as 'Languages', 'English Language Arts', 'Language Education (ESL)', 'ELL', 'ESL', etc. Note that ESL means English as a Second Language and ELL means English Language Learners (ELL). So, an OER for teaching & learning the English language was tagged with one of or more of these tags. Moreover, English literature OER were tagged with these tags that refer to teaching & learning the English language. Consequently, it was difficult to identify the exact number of OER for teaching & learning English. This paper considers the Language Education (ESL) tag for locating OER for teaching & learning the English language.

Furthermore, many ROER provide different results when searching them with different ways: i) using their search engine, ii) using filters in a specific subject and/or topic of a subject, iii) browsing and manually searching in a specific subject and/or topic of a subject, etc. For example, OASIS provide different results when searching by selecting a Subject in its Advanced Search and when searching with Filters.

Much of this confusion comes from the lack of standards to describe the metadata of OER and to structure the ROER. Also, curators and creators (authors) of OER do not always fill in correctly and accurately metadata information about the OER. Next, the paper provides suggestions for improving ROER as well the OER skills (Perifanou & Economides, 2021b) of interested stakeholders (e.g., ROER administrators and managers, OER curators and authors, teachers, learners).

4 Suggestions to ROER Administrators & Managers

In order that OER curators and creators (authors) accurately and correctly describe the OER, ROER should use a common standard for the OER metadata. Furthermore, ROER administrators and managers should at least agree on common taxonomies (or even develop standards) to fill in the various metadata fields. Therefore, ROER administrators and managers should at least agree on common metadata, taxonomies, and granularity to describe the following (among others):

- Educational subject areas/disciplines/fields (i.e., Biology, Computing, Economics, Mathematics, Medical, etc.)

- Educational topics taxonomy in each subject area/discipline/field (e.g., Biology taxonomy, Computing taxonomy, Economics taxonomy, Mathematics taxonomy, Medical taxonomy);

- Educational subject-specific skills (e.g., Languages: Reading, Listening, Writing, Speaking, Grammar and Syntax);

- Educational resource types (i.e., course, textbook, video lecture, presentation, lesson plan, quiz/assessment/exam, etc.);

- Educational resource media format (i.e., Audio, Braille/BR, Downloadable docs, eBook, Graphics/Photos, Interactive, Mobile, Text/HTML, Video, etc.);

- Educational resource teaching duration (e.g., 1 lesson, 1 week, 1 month, 1 semester);

- Education level taxonomy (e.g., seven levels: early childhood, primary, lower secondary, upper secondary, undergraduate higher, postgraduate higher, adult and continuing education; four levels: childhood, primary, secondary, higher education);

- Proficiency level taxonomy (e.g., six levels: beginner, elementary, lower intermediate, upper intermediate, advanced, proficiency; three levels: introductory, intermediate, advanced);

- Learner's age taxonomy (e.g., three levels: child, adolescence, adult; ten levels: 0-5, 6-11, 12-18, 19-25, 26-33, 33-40, 41-50, 51-60, 61-70, over 70 years old);

- Educational resource quality criteria (e.g., usefulness, clarity, comprehensiveness, organization, credibility, correctness, easy-of-use, interactivity).

For example, a common decision should be made on how many and what exactly will be the specific subject areas (disciplines, fields) as well as on the topics' taxonomy for each subject area (discipline, field). An important decision should be made on the metadata granularity. Metadata with a high granularity enables more detailed description of the OER but higher effort to fill in and maintain the metadata.

A very important action is to associate a persistent identifier (PID) to each OER. This PID is a unique permanent digital reference to the OER and does not change even if the OER is stored in various locations. So, ROER administrators and managers should agree on a coding scheme for assigning PID to OER like publishers assign DOI to research publications.

In addition, open common standards should be developed and correctly used by ROER to describe the following:

- metadata of OER that will be easy to use, comprehensive, accurate, and effective. Although there exist open educational metadata standards (e.g., LOM, SCORM, IMS), they are not used accurately and effectively by ROER. Comprehensive metadata could help search engines to locate target OER. However, if OER curators and creators have to fill in much information they can become overloaded and make mistakes. So, these metadata should be easy-to-use. An

example would be the following: PID, title, keywords, short description, creator/author, publisher, year of creation, language, subject area, topic, resource type, resource media format, links, educational level, proficiency level, learner's age, CC license type, accessibility, reviews, etc.

- structure and organization of ROER that will be easy-to-use and easy-to-search by people and search engines.

ROER administrators and managers would collaborate and agree to adopt and apply an open common standard as well as interconnect their ROER. They would also organize the following activities:

- Schedule periodic (every week or month) examination and update of their curated OER and their metadata following the open common standards;

- Create communities of OER curators, creators and teachers to foster their collaboration and knowledge exchange supporting the open common standards;

- Train curators, creators (authors), teachers on finding, using, creating, evaluating, and sharing OER (Perifanou & Economides, 2021b) as well as on the relevant open common standards;

- Organize periodic quality evaluation of their curated OER by experts and teachers who have already used them;

- Award OER creators who have contributed and shared to the ROER the most successful OER that follows the open standards and has received high quality reviews;

- Award OER reviewers who have provided the most useful and well accepted OER reviews.

5 Conclusions

This study shed light on the presence of Language OER in well-known Repositories of OER (ROER). It shown that there are more OER for teaching & learning the English language than other European languages in most ROER. Also, most ROER mainly curate small pieces and parts of educational material than complete courses and textbooks. Furthermore, OER metadata do not include fields to declare the basic language skills (i.e., Reading, Listening, Writing, and Speaking) as well as Grammar and Syntax. In general, it is not easy to locate a variety of options to choose among Language OER not even an appropriate Language OER for specific language for specific educational objective. Almost every ROER describes and organizes its OER differently than other ROERs and its search engine does not provide accurate results. Furthermore, information in many OER metadata is missing or is not accurate. Finally, this study suggests to ROER administrations and managers to adopt open common standards and metadata for OER, train their staff, authors and teachers, apply quality assurance measures, and much more.

Although there exist many ROER in almost every country of the world and in different languages, most well-known ROER worldwide use the English language. So, this study investigated well-known ROER that use the English language. Future research may investigate national ROER in countries that speak other languages (e.g., Chinese, Spanish, Arabic, German). Also, future research may investigate the presence of OER for other subjects (besides languages) in various ROER.

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