An Overview of Arabic Language Open Educational Resources (OER) for Primary and Secondary Education and Their Use in Offline Environments

Laura Hosman, Rachel Nova, Osamah Abdullah Ahmed Mohammed Naji and Lubna Alsaka
School for the Future of Innovation in Society, Arizona State University, USA

laura.hosman@asu.edu (corresponding author)
rnova@asu.edu
onajiosama@gmail.com
lalsaka@asu.edu

https://doi.org/10.34190/ejel.22.9.3616

Abstract: Open educational resource (OER) initiatives have opened new avenues for educational opportunities, yet OER adoption levels globally remain low. Two significant obstacles to more widespread adoption of OER are the challenge of internet connectivity that nearly half the world's population still faces, and the lack of locally-relevant (e.g. in terms of language and curricula) OER resources. This article's contribution is twofold. First, it presents a qualitative landscape analysis of existing primary- and secondary-level Arabic-language digital OERs and of the initiatives that provide these resources. Second, it details applied research via a case study, wherein appropriate resources identified in the analysis were subsequently curated for inclusion in an offline digital library currently being used in schools in Northeast Syria that offers all Open resources. Results from the landscape analysis indicate a limited quantity of Arabic-language OER content available for primary and secondary education. Furthermore, multiple challenges hinder the adoption of OER in resource-constrained settings. Accordingly, recommendations are made that could help to improve these resources' ability to be used, particularly drawing from the article's applied case study for examples. Given the case study's application of providing locally-relevant OER resources in an offline setting, this article provides a real-world example of furthering open e-learning, despite infrastructural, linguistic, and socio-political challenges. As such, it advances research supporting innovative e-learning practice, and should be of interest for scholars and practitioners interested in furthering the adoption of open e-learning in low-resource settings globally.

Keywords: Open educational resources (OER), Open access (OA), Offline, Libraries, Arab region, Arabic language

1. Introduction

Open Educational Resources (OERs) are often advocated as a means to increase educational opportunities and advance educational equity, helping educators and students overcome barriers such as physical distance, affordability, and other socio-economic and cultural challenges (Willems and Bossu, 2012). Nonetheless, uptake and acceptance of OERs globally have remained at low levels, particularly outside of English-speaking communities (Karakaya and Karakaya, 2020). Multiple barriers to adoption have been identified, including lack of awareness, policy issues, infrastructural capabilities, (perceptions of) quality, and localization factors such as language and cultural considerations (Abbad, Morris and de Nahlik, 2009; Uzuner, 2009; Hassler and Jackson, 2010; Karakaya and Karakaya, 2020; Peneder and Walcher, 2020; Tlili, et al., 2020).

Given the diversity of economic, political, cultural, geographic, and infrastructural realities, the Arab region is a particularly interesting case study of the successes and limitations of OERs (Eshet-Alkalai and Aydin, 2009) with *multiple* countries in the Arab region raking in *both* the top-10 *and* lowest-10 GDP per capita lists (World Bank, 2023). Not surprisingly, literacy and educational attainment rates vary widely within the region (United Nations Development Program [UNDP], 2023). One potential outcome, which partially motivated the present study, arises from the disparity seen within the region, contrasted with the potential to address one of the most identified barriers to adoption—a commonly spoken language. In other words, since Arabic is spoken by over 260 million people, and is the major language used across the entire Arab world (Kaye, 2018), the opportunity would seem to exist for the creation of OERs in Arabic, by the Arab countries with very high per capita GDPs and educational attainment, that could also benefit those less well-off across the region.

Moreover, while the Arab region accounts for 5% of the global population, its people represent 32% of global refugees and 38% of people internally displaced due to conflict (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2019). Since displacement and conflict have negative effects overall on

Cite this article: Hosman, L. et al. 2024. "An Overview of Arabic Language Open Educational Resources (OER) for Primary and Secondary Education and Their Use in Offline Environments", *Electronic Journal of e-Learning*, 22(9), pp 01-14, https://doi.org/10.34190/ejel.22.9.3616

educational continuity and attainment, a strong argument can be made for harnessing the advantages of OER in the Arab region, in terms of cost savings and enabling distance learning. However, OERs are generally shared and disseminated digitally, via the Internet, which presents its own barriers in reaching those who are most in need of accessible, free educational materials. Approximately half of the adult population across the Arab States region does not use the internet, which places the region overall in line with global levels of internet use (International Telecommunications Union [ITU], 2020). The percentage of internet users is even lower among rural, less literate, and lower income populations across the region (ITU, 2020), not to mention for those displaced by civil unrest or conflict. Mustafa (2013) reports that online Arabic materials in general (not just OER) make up barely 3% of total Internet content. This demonstrates the critical need for more Arabic information to be published online in general, and as open content in particular.

Given internet connectivity challenges for nearly half the world's population, exploring strategies for reaching offline populations was the second motivating factor in our research. Here are the research questions addressed in this article: (1) What are the prospects and challenges of utilizing Arabic-language Open Educational Resources (OER) for primary and secondary education in the Arab region, particularly in offline environments; and (2) How can these resources be effectively curated and implemented to address educational disparities and connectivity issues?

To address these research questions, the study informing this article undertook a landscape analysis of OER initiatives and resources, that were online, in Arabic, or originating from the Arab region, and that were targeting primary and secondary educational levels. Further analysis was performed to determine the geographic location of the initiatives, whether they were public or private, and whether the content they produced was copyrighted, open, OER, or something in-between, and finally, assessed the resources' suitability for offline use. The article makes a further original contribution to the literature with applied research by curating the identified content into an offline digital library for use in schools in Northeast Syria.

While there have been a limited number of studies of the current status of OER adoption and use in the Arab region (see e.g. Eshet-Alkalai and Aydin, 2009; Jemni and Khribi, 2016; Tlili, et al., 2020; Adil, et al, 2024; Elnaqlah and Abbas, 2024) all of these studies are focused at the university level, which mirrors the academic-level emphasis within the scholarly literature on OERs more generally. Therefore, to the best of our knowledge this is the first study to focus on OER intended for primary and secondary level education across the entire Arab region, or to examine OER's potential to be used in an offline environment. It takes a further novel step by utilizing the discovered resources in a real-world application, not only adding to the scholarly literature but also contributing to the dissemination and use of OER/Open Access resources in the Arab region, and doing so with real-world examples that Ministries of Education could emulate or adopt. Given the absence of scholarly study of OERs in Arabic at the primary and secondary level, combined with the novel presentation of real-world application of OERs at the primary and secondary level, this paper makes a significant contribution to the gap in the literature in this area.

The remainder of the article is organized as follows: after an overview of the literature on OER and its challenges in the Arab context, the methodology and findings section are presented and discussed. The article concludes with recommendations, based on the findings.

2. Review of Relevant Literature

While developed countries have faced challenges in adopting OERs, the challenges are proving even greater for developing countries, where OER adoption is significantly lower (Hatakka, 2009; Karakaya and Karakaya, 2020; Peneder and Walcher, 2020). One fundamental challenge facing the OER movement in developing countries is the absence of infrastructure needed to access them, including electricity and internet connectivity. Data show that across the Least Developed Countries (LDCs), only one-third of primary schools have electricity, and an even greater number lack the internet connections and the information and communications technologies (ICTs) that could be used for pedagogical purposes (United Nations [UN], 2023). Approximately two-thirds of the world's primary and secondary school-age children have no internet access in their households, which left 1.3 billion children disconnected and out of schools during the COVID-19 pandemic era (United Nations Children's Fund [UNICEF], 2020).

Still, utilizing OERs requires more than mere availability of connectivity and ICTs, as *meaningful* usage of technology requires more than access (Hosman and Pérez Comisso, 2020), as there are human, socio-cultural, pedagogical, and support issues to be taken into account in addition to infrastructural considerations (Mirzamohammadi, 2017). In addition to mere access, specific skill-sets must be present in order for users to

discover, use, distribute, and adapt these resources. These skill-sets encompass both information literacy and digital literacy. Information literacy, as defined by the American Library Association, is the ability to identify, locate, evaluate, and use information. Digital literacy is the ability to meaningfully use digital tools, such as smartphones, computers, and the internet. Neither information literacy nor digital literacy is likely to be developed in offline, low-resource settings where access to relevant, trustworthy information is a challenge, nor is it likely to be fostered by profit-motivated internet providers.

2.1 Literature on OERs and the Challenge of Localization

Literacy skills have traditionally been built in an educational setting, underscoring the importance of training teachers in order to build these skills among the burgeoning youth population across the developing world (Hosman, Gómez-Zermeño, and Alemán de la Garza, 2020). To create a more just future, Tang and Bao (2020) emphasize the importance of building teachers' digital skills in order to be able to adapt OERs to fit their teaching context, while Sa'di et al. (2022) assert that students' skill-sets, learning styles and study habits also need transformation to smooth their transition to digital forms of learning. These empowering skill sets--digital and information literacy--require higher order capabilities that can only be developed over time, with practice, and with access to relevant, useful information (Hosman and Pérez Comisso, 2020).

Digital and information literacy capabilities influence educators' ability to make use of OERs to serve their learners' educational needs. Researchers use the term "localization" or "contextualization" to describe the ability to modify an OER to meet language, cultural, or educational levels, so that an OER is useful in a particular context (Smith, 2009). The creation of OERs in and for one context may result in social and cultural barriers that prevent educators and learners in other contexts from using and adapting OERs (Richter and McPherson, 2012; Willems and Bossu, 2012; Cobo, 2013). Those barriers are often rooted in areas of language, history, and socio-economic realities.

Contextualization is one of the most significant and complex challenges facing OERs' global adoption (Kanwar, Kodhandaraman and Umar, 2010; Wiley, Bliss and McEwen, 2014; Karakaya and Karakaya, 2020; Peneder and Walcher, 2020). It raises the challenging question of *who* is doing the localization. For example, translation into other languages is a good starting point for localizing OERs. Yet, as Karakaya and Karakaya (2020) point out, mere translation may be insufficient if it lacks cultural nuance. To wit, Arabic is an official or co-official language across 25+ countries, each with their own unique cultures. In an ideal scenario, being the experts on their own communities, end-users of OERs would be able to change and adapt them to meet their own needs. However, *using* OERs and *creating or adapting* OERs require two very distinct skill sets, with the latter requiring high levels of digital and information literacy skills. This presents a dilemma, as the skill sets required to localize OERs are difficult to develop in low-resource contexts where OERs stand to have the most impact.

Thus, the process of localizing a resource depends a great deal on the skills of the users. Ivins (2011) explored the factors most salient to the process of localizing OERs in Nepal, concluding that only a local can localize, and highlighted the difficulty of addressing social and cultural aspects through localizing foreign resources. Cobo (2013) analyzed English, Spanish, and Portuguese OER queries from 2007-2011, and while he identified a growing interest in OER from non-English speaking sources, he also found a widening language gap—the quantity of English-language OER is growing at a much faster pace than in any other language. In fact, Klemke et al. (2010) argue that the massive focus on improving English/Western OERs without investing in building the capacities of local educators in developing countries could relegate developing countries to the role of knowledge consumers instead of knowledge contributors.

2.2 Literature on OERs in the Arab Region

To date, a limited number of scholarly studies have focused specifically on OER in the Arab region. Hoosen (2012) reported the results of a survey on governments' OER policies conducted by the Commonwealth of Learning (COL) and UNESCO. The survey results were gathered from 82 countries through their ministries of education. The results showed that language, cultural diversity, and understanding of copyrights are the main challenges for OER utilization in Arab countries (Hoosen, 2012). Yet, applying these findings to the entirety of the Arab region is problematic since only nine responses were received from eight Arab states.

Five years after Hoosen's report, Jemni and Khribi (2017) documented the Arab League Educational, Cultural and Scientific Organization (ALECSO)'s ongoing and planned activities to prompt the creation and use of OERs by and for people in the Arab region. They reported an absence of policy to encourage an OER emphasis across the Arab region, as well as the lack of OER development and use in Arab countries, especially in the Arabic

language (Jemni and Khribi, 2017). Moreover, they cited the low levels of requisite skill sets for using ICTs as hindrances to OER resource creation and use.

Three years subsequent to Jemni and Khribi's study, Tlili et al. (2020) conducted a similar study focusing on the Arab region, which was sponsored by ALECSO. The main goal of the study was to identify gaps in creating and adopting OERs in the Arab region and to provide recommendations for the future. The data was collected through a survey that was disseminated by ALECSO to all Arab countries. The research collected 735 responses from 22 Arab countries, with 57% of the responses coming from Palestine, Saudi Arabia, and Bahrain. It is important to note that due to the methods used, responses were collected from individuals who were already interested in OER adoption.

Tlili et al. (2020) highlighted the unequal progression of the OER movement within Arab countries. They stressed the importance of raising awareness around OERs, specifically around open licenses and their role in protecting OER publishers. Eight years after Hoosen's 2012 survey, Tlili et al. (2020) still found a scarcity in initiatives and policies that support OER adoption in the Arab region. They identified 11 initiatives that contribute to the OER movement by either creating open universities or developing OER repositories and Massive Open Online Course (MOOC) providers. Most of these initiatives serve higher education. Furthermore, their results showed that OERs are most often used in their original form, without any localization or contextualization taking place (Tlili, et al., 2020). This finding should not come as a surprise, given the Catch-22-style challenge described above.

Addressing the localization challenge raised above is a complex endeavor: How can a local localize if they lack the requisite technology and skill sets? How can these skill sets be built in resource-constrained locations? These are precisely the challenges that the SolarSPELL initiative, highlighted in this article, seeks to address (Hosman, 2018). Given the paucity of research around OERs in the Arab region, the present article adds to this literature by exploring and analyzing the available open access primary and secondary school-level resources in Arabic.

3. Context and Application of the Study: SolarSPELL offline Digital Library for Northeast Syria

The SolarSPELL Library Initiative at Arizona State University (ASU) aims to address educational challenges facing remote communities globally with a unique approach: combining ultra-portable, solar-powered, localized, offline digital libraries with teacher-training to build both digital skills and information literacy. SolarSPELL libraries enable offline access to a collection of curated localized resources, all of which are open-access or permission has been obtained add them to the library and redistribute them. SolarSPELL's activities also emphasize impact evaluation to inform continual improvement of all aspects of the initiative (Hosman, et al., 2020; Hosman, Gómez-Zermeño, and Alemán de la Garza, 2020).

In all cases, the SolarSPELL initiative works closely with local partners to determine the appropriate content to meet the educational needs of the libraries' users. In 2021, the SolarSPELL team began working with the Department of Education in the Autonomous Administration of North and East Syria (AANES), and together, they began identifying and co-curating content for a library that is currently being piloted in secondary schools in the AANES region as of 2023.

The SolarSPELL library for use in AANES was to be trilingual to match the languages spoken in the region: Arabic, Kurdish, and Syriac. Nonetheless, given the significantly larger number of digital resources available in Arabic, and the ability for the team to identify Arabic-speakers among ASU students who contribute to every aspect of the university-based initiative, both teams agreed to begin the OER/Open Access resource-identification process with a survey of the existing initiatives offering resources in Arabic. This survey of existing Arabic language OER/Open Access initiatives constitutes the original research informing this article. The second stage of the research activity--the applied portion--was the curating of the identified content into the SolarSPELL library for use in AANES schools.

4. Methodology

The research informing this article was exploratory in nature and novel as a landscape analysis of existing Arabic language OER/Open Access initiatives and resources available. In contrast, all of the other articles cited in this paper that focused on the Arab region administered surveys to government officials and other experts to inform their research. While there is value in taking a top-down approach, surveying experts and officials relies on their generosity of time, knowledge of existing resources, and presents a different vantage point from the aim of the present study, which is directly identifying and curating available resources.

This article makes a further contribution by focusing on identifying OER/Open Access content in Arabic that serves primary and secondary level learners and educators, as opposed to serving higher education-level learners. The process of identifying initiatives, and subsequently curating the available digital Arabic resources constitutes the original applied research contribution of this article.

Our research stands on Hilton III et al's (2010) conceptual assumption that the openness of educational resources is not a binary concept, but rather is a gradual, multidimensional concept that depends on several legal, technical, and social factors. Hence, to bring a clear understanding of the available Arabic OERs, we explored both the resources and initiatives that provide at least free open access to Arabic primary and secondary school-level educational content.

As Frith (2009) laments, there is no comprehensive database or other existing system that would allow for an exhaustive search of open access resources, and this has not changed in the intervening 15 years. Because there is no database that would give signals about the nature of the resources, Smith (2012) exhorts researchers that the next step must be evaluation of identified resources as an integral part of the search process, particularly given the uncontrolled environment of the internet.

Therefore, in identifying OER/Open Access educational resources, part of the curation process involved assessing the creators of this content to understand where and by whom it was produced. Subsequently, the identified initiatives were categorized according to: sector (i.e. public, private, or nonprofit/non-governmental organization [NGO]); country of origin; type of contribution (creation or curation); and business model (non-profit or for-profit). The resources provided by the initiatives were categorized by: topical/focal area; format or type; and intended audience. The resources were subsequently evaluated as to whether they were at least open access in terms of copyright, and therefore could be added to the SolarSPELL Middle East Education Library.

The twofold process included first identifying any websites or repositories with OER/Open Access Arabic language content. Next, the resources that were determined to be open access, educational, and culturally-appropriate were curated, cataloged, and meta-data tagged, in order to be added to the SolarSPELL offline digital library for use in AANES schools. The search for this information was conducted from October to November 2021 and the database containing the search results can be accessed at the following URL (Resources Database), also accessible in Appendix A.

4.1 Data Collection

The data which this research draws upon were collected through the following steps. First, a list was created of the OER/Open Access initiatives that are well known for their primary and secondary school-aged, educational, online free resources. Then, Google Search was used as the main platform to search for other OER/Open Access initiatives. Google Search is the world's most popular website and search engine, holding a 92% dominance of the global search engine industry, with over 4.5 billion daily searches (Google Search Statistics, 2021). Google's search engine has detected more than 30 trillion unique URLs on the Web, scans 20 billion sites each day, and processes 100 billion searches per month (Google Search Statistics, 2021). While not frequently employed as the search engine of choice to inform academic studies, in this case it was appropriate, given both Google's ability to locate more sites than any other search engine, and the fact that the subject of our search itself was not scholarly in nature.

Seven main queries were used to search the Google platform. Queries are the words or phrases entered into search engines and directories to find specific results (Cobo, 2013). The queries were formulated and conducted in Arabic and reflect the appropriate terminology in the Arabic language that do not directly translate to the English terminology that would be used to describe similar resources. These queries were created by the native Arabic speakers among the authors of this article and were designed to thoroughly scour the available resources in Arabic that are discoverable via Google search. Table 1 reveals the Arabic queries and their translations into English.

Table 1: Arabic queries used in searching for open educational resources and their translations into English

English Translation	Arabic Queries
Open learning platforms in Arabic	منصات التعليم المفتوح باللغة العربية
Free e-learning platforms in Arabic	منصات مجانية للتعليم الإلكتروني باللغة العربية
Free educational courses	دورات تعليمية مجانية
Scholarships for distance learning	منح دراسية للدراسة عن بعد

English Translation	Arabic Queries
Open learning initiatives	مبادرات التعليم المفتوح
School learning resources	موارد تعليمية مدرسية
School Education Tools	أدوات التعليم المدرسي

The Google search results were examined to identify the initiatives that met all of the following criteria:

- Provide Arabic language content
- Offer resources that serve primary and secondary school-age learners and/or their educators
- Provide free access to educational resources

This study elected not to include educational tools such as applications, open source software, or licensing tools, as they were beyond the scope of this research and the SolarSPELL initiative's work. Peer-reviewed resources were also reviewed for additional initiatives that were not discovered using Google search.

Subsequently, from the final list of identified initiatives, further meta-data were specified in two main categories. The first category was related to the initiative itself. This included the name of the initiative, the nature of the initiative (is it a resource-creating or resource-curating initiative), and the name and type of the organization that sponsors this initiative (governmental, NGO, private, grassroots social initiative). The other category was related to the resources themselves, including topics, audience, format, and license.

5. Results

The high-level takeaways from this research are herein described, whilst the subsequent sections provide more detail and discussion of the findings. Using the methods discussed, 33 initiatives providing "at least free access" for Arabic educational resources that serve primary and secondary school-level learners or educators were identified. The identified initiatives come from 9 out of 22 Arab countries. Most of the initiatives identified were private sector (either for-profit entities or non-profit NGOs), while the number of government initiatives contributing to OER/Open Access resources was much smaller.

The majority of initiatives identified are *creating* teaching and learning materials, as opposed to *curating* such materials. Among the 33 initiatives identified, there were several focus areas. Most of the initiatives focused on curriculum support, followed by content focused on language and reading. Additionally, most of the initiatives focused on content for primary and secondary students, while fewer focused on educators' professional development.

5.1 Landscape Analysis of Arabic Language OER/Open Access Initiatives

While most of the 33 Arabic OER/Open Access initiatives originated from within the Arab region, there are some initiatives originating from non-Arab states, while other initiatives are global in their makeup (Figure 1). In this case, "global" comprises primarily intergovernmental or interagency organizations, such as the United Nations High Commissioner for Refugees (UNHCR).

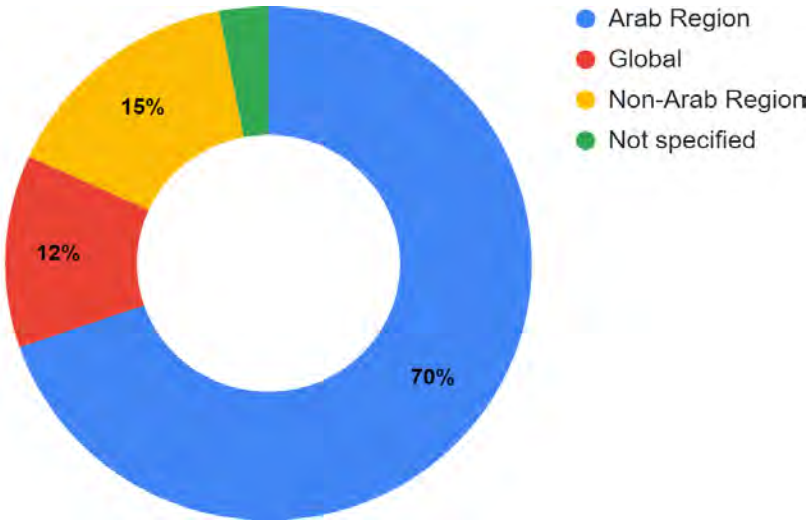

Figure 1: Percentage of initiatives according to their region of origin

The distribution of initiatives originating from an Arab country or region are shown in Table 2. The initiatives come from just 9 out of 22 Arab countries, which may reflect the economic and political challenges facing the development of education systems in some Arab countries. For example, in this research, there were no initiatives identified that originated from Iraq, Yemen, or Libya. The largest number of initiatives from any one Arab country originated from Saudi Arabia (with 6, or 26%).

Table 2: Number of OER/open access initiatives from Arab states or region

Origin country	Number of initiatives
Saudi Arabia	6
Jordan	4
UAE	3
Egypt	2
Lebanon	2
Arab Region	2
Algeria, Bahrain, Syria, Palestine	1 each
Total	23

Most of the initiatives are private sector organizations (for-profit or NGOs). There is some state involvement in sponsoring and launching the initiatives; however, the number of state-sponsored initiatives is significantly lower than private sector initiatives. Figure 2 provides a detailed illustration of the distribution of the initiatives between the different sectors and the type of contribution (creating vs. curating content), which will be defined and discussed in more detail in the next section.

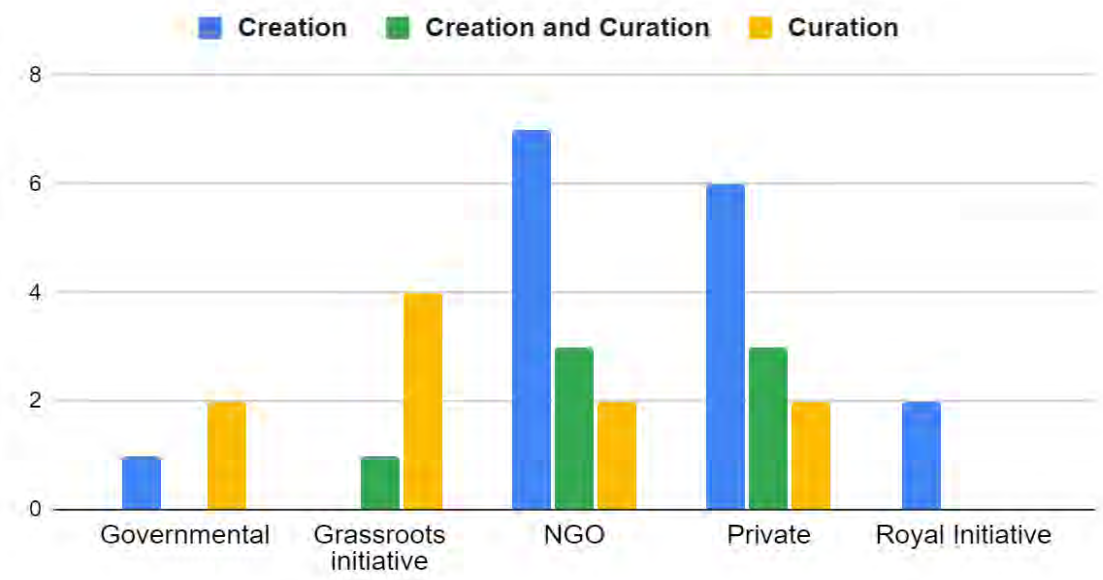

Figure 2: Distribution of Arabic language OER/open access initiatives between sectors and by type of contribution (creation vs. curation)

We categorize the types of initiatives based on the source of funding and/or their legal status. Five types of initiatives were identified:

- Governmental initiatives: State governments - most often ministries of education
- Grassroots initiatives: Community-based organizations or groups of teachers
- NGO: Nonprofit organizations that operate independently of any government
- Private: For-profit organizations
- Royal initiatives: Arab Royal families (of United Arab Emirates and Jordan)

5.2 Creating and Curating Arabic OERs

There is a distinction between creating and curating content. Creating involves generating new teaching and learning materials. Curating means collecting (including from individuals and educators), organizing, and sharing existing resources with a specific audience in mind, via a website, blog, social media platform, or any other platform. The curation process focuses on facilitating the discovery and availability of resources.

As illustrated in Figure 2, the greatest number (48%) of the initiatives exclusively create teaching and learning resources, with NGOs taking the lead over government-led initiatives in content creation. By contrast, 30% of the initiatives curate available resources, with grassroots initiatives doing so more frequently than other initiatives. Finally, 21% of the initiatives adopted a hybrid style where they both created and curated their teaching and learning materials with a majority of these resources coming from the non-profit and private sectors (Figures 2 and 3).

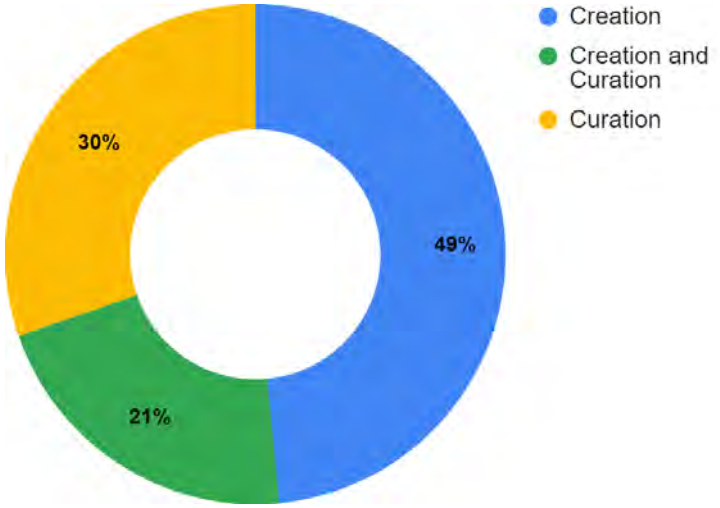

Figure 3: Initiatives' contribution to Arabic language OERs by type (creation vs curation)

5.3 Focus Areas and Topics

The 33 initiatives identified have several focus areas, with curriculum support constituting nearly half (14, or 42%). The second most common topic is language and reading, with 4 (12%) of the initiatives. There are also several resources focused on topics related to teaching in emergencies that address the critical needs of refugees and war survivors, such as trauma-informed teaching, child protection, and education for peacebuilding. These resources are mainly developed by global organizations. Other initiatives focus on several different subject areas such as science and math, digital literacy, educational training, and more (Table 3).

Table 3: Main topics/focus areas of Arabic language OER/open access initiatives

OER/open access focus areas	Number of initiatives
Curriculum support	14
Language and reading	4
Science and math	1
Social science	1
Digital literacy	1
Educational training	1
Teaching in emergencies	4
Miscellaneous	7
Total	33

OERs included in this landscape analysis are digital in format, which eases their use, reuse, and distribution in a variety of educational contexts, often at a lower cost. Additionally, they can support a variety of learning styles. In terms of resource type, the majority of Arabic OER/Open Access initiatives offer MOOCs or other curriculum-

related documents such as textbooks, worksheets, and lesson plans (Table 4). The remaining resources vary between audio stories, articles, games, infographics, simulation, and other non-textbook books.

Table 4: Types of OER/open access resources

Resource type	Number of initiatives
MOOCs	8
Textbooks, worksheets, lesson plans	8
Educational videos	5
Books	3
TV shows	3
Articles	2
Audio stories	2
Toolkits and standards	2
Games	2
Infographics	1
Simulations	1

5.4 Target Audiences

Figure 4 illustrates that the largest percentage of resources are designed for students, with 38%, aimed towards secondary students and 37% for primary students. Comparatively fewer resources (25%) were designed specifically for teachers.

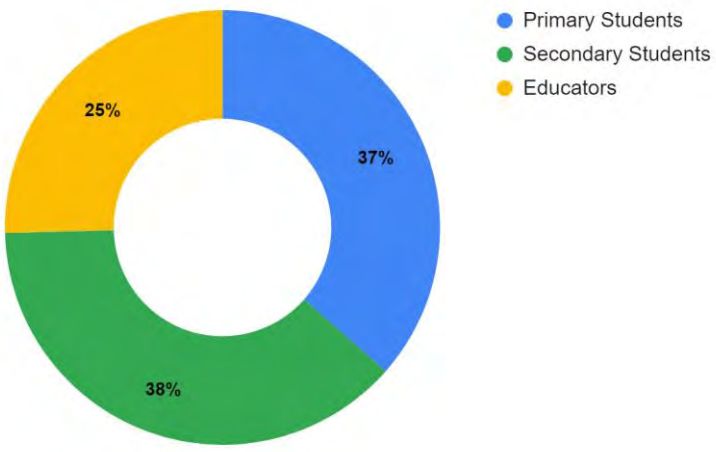

Figure 4: Target audiences for Arabic OER/open access initiatives

6. Challenges of OERs/Open Access Initiatives

The challenges of Arabic language OERs are multifaceted, most prominently a lack of available resources that are localized to meet the varying cultural and pedagogical needs across the region. Indeed, similar obstacles face OER adoption across the entire non-English speaking world (Karakaya and Karakaya, 2020). In the spirit of providing guidance to others seeking to improve educational equity via OER/Open Access resources, after describing some of the pressing challenges below, the SolarSPELL initiative's approach to addressing these challenges is also presented. The SolarSPELL initiative provides an action-oriented, field-tested approach to addressing a number of the challenges that prevent the creation, dissemination, and use of OER/Open Access resources around the world.

6.1 Challenges Defining and Certifying OERs/Open Access Initiatives

Although many of the Arabic language OER/Open Access initiatives are designed to facilitate free access to digital educational resources, these resources often are not explicitly licensed under an open license, such as Creative Commons (2020). If the resource creators have given thought to copyright and want the resources to be shared,

the most common Creative Commons copyright level is that of "Open Access." Figure 5 shows that only 33% of the initiatives identified in this study are licensed as Creative Commons. This challenge is, in fact, a global issue, which Hoosen (2012) attributes at least partially to confusion in the understanding of the concept and potential of OER.

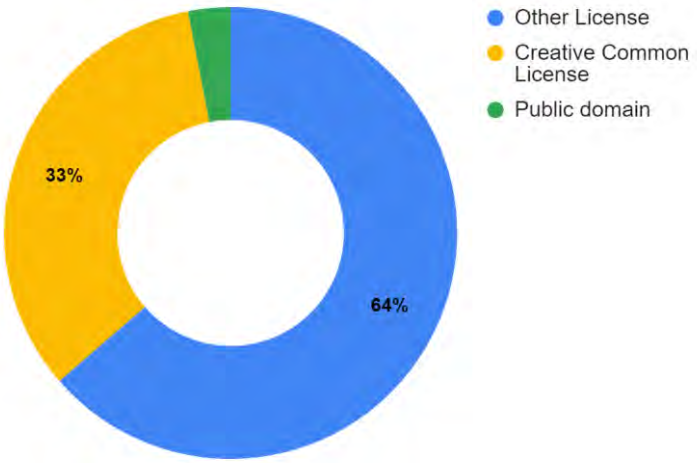

Figure 5: Arabic OER/open access resource licenses

On the other hand, many of the initiatives in this study do not clearly state the legal license for their resources, or they have several types of resources with no clear statement on "terms of usage" for each type of resource. In such cases, we reached out to inquire about resources' copyright and terms of usage. This process often involved waiting several weeks and making multiple outreach attempts, which only sometimes resulted in a positive response to confirm possible use of the resources.

Recognizing the challenge of understanding, defining, and certifying what constitutes OER, SolarSPELL only curates content into the digital library that is at least Open Access in terms of its copyright status. When the copyright status is unclear, SolarSPELL curators reach out to request permission to add creators' content to the library, making clear that it will be considered Open Access.

6.2 Technical Challenges

From a technical perspective, significant challenges relate to resource format and file size. Hassler and Jackson (2010) argued that allowing OERs to grow in size limits the usage of such resources, especially in offline or low bandwidth environments, and/or where income levels mean connectivity or data is expensive. Their warning has proven well-founded but ill-addressed in the years since then. While newer devices have increased storage to accommodate correspondingly increasing file sizes, these new devices are often not available to those who would most benefit from OERs and rely on older, less expensive technology. Furthermore, many people globally rely on internet service that is purchased by the byte, driving them to purposefully avoid large--and therefore costly--files and websites. Hassler and Jackson (2010) propose several strategies to improve the low-bandwidth accessibility of OERs, including offering different formats of a resource (i.e. offering a transcript download for a video) and user training.

In the applied context of this study, the SolarSPELL library's digital content is limited to MP4, MP3, PDF, and html files in order to ensure accessibility on any device type (computer, tablet, or smartphone), without the user needing to download any additional software or applications. SolarSPELL digital library resources, especially videos, are generally kept (or downsized to) below 150 MB in size; this ensures that the video will open and may be downloaded by library users, whose devices may not have significant storage capacity.

6.3 Regional Localization and Political Considerations

The civil conflict that has been taking place in Syria since 2011 has had a disastrous effect on the educational system. The impact of the conflict includes school closures, student displacement leading to interrupted education, reduction in returns to education, and reduced educational expenditures due to an overall reduction in resources and shifting priorities (Ndaruhutse and West, 2015). This situation has also affected neighboring countries, as Turkey, Lebanon, Jordan, Iraq, and Egypt have each taken in hundreds of thousands of Syrian refugees fleeing the unrest.

Given the multiple challenging sociopolitical situations across the Arab region causing mass displacement, with ⅓ of global refugees and over ⅓ of internally displaced people globally (UNESCO, 2019), it is perhaps not surprising that our study revealed a scarcity of OER/Open Access resources tailored to support local school curricula in conflict-affected states. We did, however, find regional resources focused on topics related to teaching in emergencies, with topics such as mental and physical health, social-emotional learning, and aiding traumatized children. Most of these resources were provided by global IGOs, such as UNHCR and the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). Nonetheless, the lack of local school curricula available in Northeast Syria is one of the challenges the SolarSPELL initiative directly addresses.

7. Discussion and Conclusion

Open Educational Resources serve a critical function in promoting inclusive and equitable quality education and creating possibilities for lifelong learning for all. Despite the fact that many countries have made progress in OER adoption, developing countries, including those in the Arab region, still face substantial hurdles that must be addressed in order to achieve potential benefits. This study addressed a gap in the research literature on OERs in the Arab world, with a goal of understanding the current landscape of existing OER/Open Access primary and secondary school-level Arabic language resources and providing a case study of an initiative promoting the dissemination and use of said resources in Northeast Syria.

Undertaking the landscape analysis provided insights to address the first research question: What are the prospects and challenges of utilizing Arabic-language Open Educational Resources (OER) for primary and secondary education in the Arab region, particularly in offline environments? This study identified 33 OER/Open Access Arabic-language initiatives, of which 22 originated from 9 Arab countries, with the greatest number of initiatives originating from Saudi Arabia. Most of these initiatives originated from the private sector or from NGOs, while there were few government-sponsored initiatives. The largest number of these initiatives contributed teaching and learning materials, with major emphases on curriculum support as well as on language and reading. The majority of Arabic OER/Open Access initiatives focus on primary and secondary students, while there were fewer resources to support educators.

Collecting and curating resources for an offline digital library yields some recommendations for OER initiative leaders and organizations committed to enhancing global educational equity. First, the authors call for increasing efforts to raise awareness of OERs by clarifying their concept and benefits, encouraging the OER community, including users, creators, and curators, to ensure proper and clear communication for resource licenses to ease interorganizational sharing and localization efforts. Second, collaboration between the private and public sectors is essential for making progress in promoting quality education for all. Third, it is vital to engage educators in becoming more active participants in creating and using OER/Open Access content. As members of diverse and inclusive knowledge societies, they can help cover local educational topics that are aligned with community needs. Fourth, in the interest of promoting equitable access for those with limited or no connectivity, we recommend offering several formats and sizes for resources, whenever possible. Fifth, offline approaches are oftentimes the only way to reach remote or displaced people and that indeed in some circumstances, offline is preferable to online. All of these recommendations are achievable, as evidenced by the SolarSPELL initiative's work outlined in this article.

While this article does not assert that the majority of OERs should be created by government agencies, governments--and ministries of education in particular--could play a significant role in promoting OER initiatives to ensure equal and quality education for everyone. When OERs are funded by private interests and hosted on platforms controlled by oligopolies, the metadata and personal data of their users are fed to these organizations. This may not serve to support or promote local educational resource production. A global commons built on the terms of for-profit transnational companies will fail to address the actual needs of local school communities, educators, and students around the Arab region, which bolsters the argument (at least, in an ideal world) for a public entity promoting the creation, hosting, and provision of OERs. Still, collaboration between the private and public sectors remains essential for making progress in promoting quality education for all.

The applied component of this research, the SolarSPELL Initiative, addresses the article's second research question: How can these resources be effectively curated and implemented to address educational disparities and connectivity issues? The SolarSPELL initiative is currently working with the Department of Education in the AANES to co-create and co-curate OER/Open Access resources to an offline digital library that is currently being used in local secondary schools. In other words, this article's case study presents an actionable, real-world initiative that other entities, from ministries of education to NGOs in charge of educational operations, could

adopt as policy. This type of partnership, one that facilitates local creation, curation, and dissemination of open educational resources, should be supported and replicated.

In terms of limitations, this study only explored the existence of Arabic OER/Open Access resources and did not assess the resources for quality, accessibility, applicability, or cultural relevance. Assessing the quality of available OERs that are provided by these initiatives would contribute to the scholarly body of literature on this topic. More importantly, it may lead to greater levels of adoption and improved educational outcomes.

The challenges of creating and adopting Arabic language OERs are multifaceted, encompassing a lack of localized resources, unclear licensing, technical limitations, and regional sociopolitical instability. Despite these obstacles, the SolarSPELL initiative has developed a comprehensive approach addressing these issues. By ensuring resources are at least Open Access and reaching out for permissions where necessary, SolarSPELL curates a digital library accessible offline to WiFi-enabled devices without additional software. Moreover, the scarcity of localized educational content in conflict-affected areas like Northeast Syria is addressed by SolarSPELL's focus on partnerships that enable creation of resources aligned with local curricula, addressing an essential need for displaced and refugee populations. Such initiatives could collectively contribute to improving educational equity via OER/Open Access resources in the Arab region and beyond.

Ethics statement: This paper did not require ethics approval.

AI statement: No AI was used at any point in the research, writing, or creating of this paper.

References

Abbad, M., Morris, D. and de Nahlik, C., 2009. Looking under the bonnet: factors affecting student adoption of e-learning systems in Jordan. *The International Review of Research in Open and Distributed Learning*, 10(2). https://doi.org/10.19173/irrodl.v10i2.596

Adil, H.M., Ali, S., Sultan, M., Ashiq, M. and Rafiq, M., 2024. Open education resources' benefits and challenges in the academic world: a systematic review. Global Knowledge, Memory and Communication, 73(3), pp 274-291. https://doi.org/10.1108/GKMC-02-2022-0049

Cobo, C., 2013. Exploration of open educational resources in non-English speaking communities. *The International Review of Research in Open and Distributed Learning*, 14(2), pp.106-128. https://doi.org/10.19173/irrodl.v14i2.1493

Creative Commons. (2020, May 22). About CC licenses. Creative Commons. Available at: https://creativecommons.org/about/cclicenses/

Elnaqlah, A.A. and Abbas, M., 2024. Modeling the effects of self-learning and knowledge sharing in oer courses among college students. Journal of Theoretical and Applied Information Technology, 102(5). Available at https://www.jatit.org/volumes/Vol102No5/16Vol102No5.pdf

Eshet-Alkalai, Y. and Aydin, C. H., 2009. A bridge over troubled waters: learning technologies in the Middle East. *The International Review of Research in Open and Distributed Learning*, 10(2). https://doi.org/10.19173/irrodl.v10i2.723

Frith, J., 2009. Open revolution: An environmental scan of the open textbook landscape. North Carolina State University Digital Scholarship & Publishing Center. Available at: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=db2d4f4a932b011b8b1acfa53491e7e75f87f500

Google Search Statistics. 2021. Google Search Statistics - Internet Live Stats. Available at Available at: https://www.internetlivestats.com/google-search-statistics/

Hassler, B., and Jackson, A.M., 2010. Bridging the bandwidth gap: open educational resources and the digital divide. *IEEE Transactions on Learning Technologies*, 3(2), pp.110–115. https://doi.org/10.1109/tlt.2010.8

Hatakka, M., 2009. Build it and they will come? - inhibiting factors for reuse of open content in developing countries. *The Electronic Journal of Information Systems in Developing Countries*, 37(1), pp.1–16. https://doi.org/10.1002/j.1681-4835.2009.tb00260.x

Hilton III, J., Wiley, D., Stein, J., and Johnson, A. 2010. The four 'R's of openness and ALMS analysis: frameworks for open educational resources. *Open Learning: The Journal of Open, Distance and e-Learning*, 25(1), pp.37–44. https://doi.org/10.1080/02680510903482132

Hoosen, S., 2012. Survey on governments' open educational resources (OER) policies. Commonwealth of Learning. Available at: http://oasis.col.org/handle/11599/291

Hosman, L., 2018. Impatience as a Virtue: Addressing Persistent ICT-in-Education Challenges in Small Developing Countries, 169-193. In I. Lubin (Ed.), *ICT-Supported Innovations in Small Countries and Developing Regions*. Switzerland: Springer International Publishing.

Hosman, L. and Pérez Comisso, M.A., 2020. How do we understand "meaningful use" of the internet? Of divides, skills and socio-technical awareness. *Journal of Information, Communication, and Ethics in Society*, 18(3), pp. 461-479. https://doi.org/10.1108/JICES-05-2020-0055

Hosman, L., Gómez-Zermeño, M. G., and Alemán de la Garza, L., 2020. SolarSPELL assessment: Impact of a solar-powered digital library as a teaching-learning resource on climate change. *Sustainability*, 12, 6636, https://doi.org/10.3390/su12166636

Hosman, L., Walsh, C., Pérez Comisso, M., and Sidman, J., 2020. Building online skills in offline realities: The SolarSPELL initiative. *First Monday*, Vol. 25 No. 7, July. http://dx.doi.org/10.5210/fm.v25i7.10839

International Telecommunications Union, 2020. Measuring digital development: facts and figures. Available at https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2020.pdf

Ivins, T. Z., 2011. *Localization of open educational resources (OER) in Nepal: strategies of Himalayan knowledge-workers*. Brigham Young University. Available at: http://contentdm.lib.byu.edu/cdm/singleitem/collection/ETD/id/2651/rec/1

Jemni, M., and Khribi, M. K., 2017. Toward empowering open and online education in the Arab world through OER and MOOCs. In: M. Jemni and M. K. K. Kinshuk, eds., Open education: from OERs to MOOCs (pp.73-100). Berlin: Springer. https://doi.org/10.1007%2F978-3-662-52925-6_4

Kanwar, A., Kodhandaraman, B., and Umar, A., 2010. Toward sustainable open education resources: a perspective from the Global South. *American Journal of Distance Education*, 24(2), pp.65–80. https://doi.org/10.1080/08923641003696588

Karakaya, K., and Karakaya, O., 2020. Framing the role of English in OER from a social justice perspective: a critical lens on the (dis)empowerment of non-English speaking communities. *Asian Journal of Distance Education*, 15(2), pp 175-190. https://doi.org/10.5281/zenodo.4319616

Kaye, A. S., 2018. Arabic. In B. Comrie, ed. The world's major languages. London: Routledge. pp. 577-594. https://doi.org/10.4324/9780203301524

Klemke, R., Kalz, M., Specht, M., and Ternier, S., 2010. Open educational resources: conversations in cyberspace - edited by Susan D'Antoni and Catriona Savage. *British Journal of Educational Technology*, 41(6), pp.968–970. https://doi.org/10.1111/j.1467-8535.2010.01135_1_1.x

Mirzamohammadi, M.H., 2017. The feasibility of e-learning implementation in an Iranian university. *The Electronic Journal of e-learning,* 15(5) pp.424-433. Available at https://academic-publishing.org/index.php/ejel/article/view/1849

Mustafa, H., 2013. Google: Arabic content ranks eighth on the internet. *Al Arabiya English*. Available at: https://english.alarabiya.net/media/digital/2013/12/01/Google-Arabic-content-ranks-eighth-on-the-internet

Ndaruhutse, S., and West, A., 2015. The quantitative impact of armed conflict on education in Syria: counting financial costs. Available at: https://www.educationdevelopmenttrust.com/our-research-and-insights/research/the-quantitative-impact-of-armed-conflict-on-educa

Peneder, M., and Walcher, F., 2020. Open education resources: current limitations and challenges and its usage in developing countries. Available at: https://free-and-open-technologies.github.io/papers/Peneder_and_Walcher_-_Open_Education_Resources_Challenges_(2020).pdf

Richter, T., and McPherson, M., 2012. Open educational resources: education for the world? *Distance Education*, 33(2), pp.201–219. https://doi.org/10.1080/01587919.2012.692068.

Sa'di, R., Sharadgah, T., Abdelraziq, A., and Yaseen, M., 2022. Future proposals for e-learning at conventional tertiary institutions as they move on past the COVID experience. *The Electronic Journal of e-learning*, 20(5), pp.523-537. https://doi.org/10.34190/ejel.20.5.2565

Smith, A.G., 2012. Internet search tactics. Online Information Review, 36(1), pp.7-20. https://doi.org/10.1108/14684521211219481.

Smith, M. S., 2009. Opening education. *Science*, 323(510), pp.89-93. https://www.science.org/doi/10.1126/science.1168018

Tang, H., and Bao, Y., 2020. Social justice and K–12 teachers' effective use of OER: a cross-cultural comparison by nations. *Journal of Interactive Media in Education*, 2020(1). https://doi.org/10.5334/jime.576

Tlili, A., Jemni, M., Khribi, M. K., Huang, R., Chang, T. W., and Liu, D., 2020. Current state of open educational resources in the Arab region: an investigation in 22 countries. *Smart Learning Environments*, 7(1), pp.1-15. https://doi.org/10.1186/s40561-020-00120-z

United Nations Development Program, 2023. *Human Development Reports*. Available at: https://hdr.undp.org

United Nations Educational Scientific and Cultural Organization Global Education Monitoring Report Team, 2019. *Arab States: migration, displacement, and education: building brides, not walls.* Available at: https://unesdoc.unesco.org/ark:/48223/pf0000371320

United Nations Children's Fund, 2020. *How many children and young people have internet access at home?* https://data.unicef.org/resources/children-and-young-people-internet-access-at-home-during-covid19/

Uzuner, S., 2009. Questions of culture in distance learning: a research review. *International Review of Research in Open and Distributed Learning*, 10(3). https://doi.org/10.19173/irrodl.v10i3.690

Wiley, D., Bliss, T. J., and McEwen, M., 2014. Open educational resources: a review of the literature. *Handbook of research on educational communications and technology*, pp.781-789. https://doi.org/10.1007/978-1-4614-3185-5_63

Willems, J., and Bossu, C., 2012. Equity considerations for open educational resources in the glocalization of education. *Distance Education*, 33(2), pp.185–199. https://doi.org/10.1080/01587919.2012.692051

World Bank, 2023. *World development indicators 2023*. Washington, DC: World Bank. Available at: https://datacatalog.worldbank.org/search/dataset/0037712/World-Development-Indicators

Appendix 1: Arabic OER/Open Access Initiatives Database

Website link	Initiative name	Orgnization name	Initiative countr	Initiative type	creation/curati	Business m	Resource topic	Resources focus	Resource type	Resouce forma	Audience	Licence
https://3asafeer.com/info#one	3asafeer	3asafeer	UAE	Private	Creation and Cu	For Profit	Language & Readi	Language & Read	Books	pdf	Primary Student,	Creative Common License
http://raneenmedia.org/index.php/er	Raneen	Raneen	Jordan	NGO/NPO	Creation	Non-profit	Language & Readi	Language & Read	Audio Stories	mp3	Primary Student	Other License
https://madrasa.org/	Madrasa	The Mohammed b	UAE	Royal Initiative	Creation	Non-profit	Math, Science, Lan	Curriculum Suppor	MOOC	mp4	Primary Student,	Other License
https://middleschool.tabshoura.com/	Tabshoura	Lebanese Alternat	Lebanon	NGO/NPO	Creation and Cu	Non-profit	Math, Science, Lan	Curriculum Suppor	MOOC	html	Primary Student	Creative Common License
http://kindergarten.tabshoura.com/	Tabshoura	Lebanese Alternat	Lebanon	NGO/NPO	Creation and Cu	Non-profit	Math, Science, Lan	Curriculum Suppor	MOOC	html	Secondary Stude	Creative Common License
https://www.edraak.org/en/k12/	Edrak	The Queen Rania	Jordan	Royal Initiative	Creation	Non-profit	Math, English	Curriculum Suppor	MOOC	html	Primary Student,	Creative Common License
https://www.rwaq.org/	Rewaq	Rewaq	Saudi Arabia	Private	Creation	For Profit	Educational trainin	Educational Traini	MOOC	html	Educators	Other License
https://inee.org/collections	INEE	Inter-Agency Netw	Global	NGO/NPO	Curation	Non-profit	Teaching in Emerg	Teaching in Emerg	Toolkits & Stanc	pdf, mp4	Educators	Other License
https://www.unhcr.org/ar/5b571 8bc4	UNHCR	UNHCR	Global	NGO/NPO	Creation	Non-profit	Teaching in Emerg	Teaching in Emerg	Toolkits & Stanc	pdf, mp4	Educators	Other License
https://ahlansimsim.org/	Ahlan Simsim	Sesame street	US	Private	Creation	Non-profit	Social Emotional Le	Teaching in Emerg	Activities, Books	pdf, mp4	Primary Student	Other License
https://arabic.oercommons.org/AP/b	OER common	OER common	US	NGO/NPO	Curation	Non-profit	Miscellaneous	Miscellaneous	Repository	Non specific	Educators	Creative Common License
http://al-hakawati.net/stories/	AL hakawati	Arab Cultural Trust	Arab Region	NGO/NPO	Creation and Cu	Non-profit	Language & Readi	Social Science	Books	pdf	Secondary Stude	Public domain
http://arabicareaders.com/audio/	Silva Education	Arabia Readers	England	Private	Curation	For Profit	Language & Readi	Language & Read	Audible Stories	mp3	Primary Student	Other License
Learning with Angela	angela	learning arabic wit	Not specified	Private	Creation	For Profit	Language & Readi	Language & Read	Flash-Cards, Wc	pdf, mp4	Primary Student	Other License
https://mrsae.com/	mrsae	mrsae	UAE	Private	Creation	Non-profit	Curriculum Suppor	Curriculum Suppor	Repository (loca	pdf, html	Primary Student,	Other License
https://shms.sa/	Shms	Saudi OER Netwo	Saudi Arabia	Governmental	Curation	Non-profit	Miscellaneous	Miscellaneous	Repository	pdf, html	Primary Student,	Creative Common License
http://eteacher.edunet.bh/course/vie	my digital library	Digital Empowerme	Bahrain	Governmental	Curation	Non-profit	Curriculum Suppor	Curriculum Suppor	Repository (loca	pdf, ppt, mp4	Primary Student,	Creative Common License
https://www.youtube.com/channel/U	UNRWA TV	UNRWA	Global	NGO/NPO	Creation	Non-profit	Miscellaneous	Miscellaneous	TV Shows	mp4	Primary Student,	Other License
https://bayt.dz.com/	Bayt DZ	Unknown	Algeria	Grassroot initiati	Curation	Non-profit	Miscellaneous	Miscellaneous	Articles	ppt, pdf	Secondary Stude	Other License
https://phet.colorado.edu/ar_SA/sim	PhET	PENDA	US	Private	Creation and Cu	Non-profit	interactive math an	Science & Math	Interactive Simu	html, mp4	Secondary Stude	Creative Common License
https://digitalschoolsy.com/	Digital school	Digital school	Syria	Private	Creation	Non-profit	Curriculum Suppor	Curriculum Suppor	Educational Vid	pdf, mp3, html,	Primary Student,	Other License
https://www.wepal.net/library/	The Education I	No info	Palestine	Grassroot initiati	Curation	Non-profit	Curriculum Suppor	Curriculum Suppor	Repository (loca	pdf, doc	Primary Student,	Creative Common License
https://www.unicef.org/jordan/ar%D	Learning Bridge	unicef-Jordan	Jordan	NGO/NPO	Creation	Non-profit	Teaching in Emerg	Teaching in Emerg	Worksheets	pdf	Primary Student,	Other License
https://www.nafham.com/	Nafham	Nafham	Arab Region	Grassroot initiati	Creation and Cu	Non-profit	Curriculum Suppor	Curriculum Suppor	Repository	pdf, mp4	Primary Student,	Other License
https://masademinfographic.blogspot	Masader infogra	masader infograp	Saudi Arabia	Grassroot initiati	Curation	Non-profit	Miscellaneous	Miscellaneous	Infographics	pdf	Primary Student,	Other License
https://ktby.net/	ktby	ktby	Saudi Arabia	Grassroot initiati	Curation	Non-profit	Curriculum Suppor	Curriculum Suppor	Lessons, Textbo	Html	Primary Student,	Other License
https://hulul.online/	hulul	hulul	Saudi Arabia	Private	Curation	Non-profit	Curriculum Suppor	Curriculum Suppor	Educational Vid	pdf, mp4	Primary Student,	Other License
https://ar.khanacademy.org/	Khan Academy	Khan Academy	Global	NGO/NPO	Creation	Non-profit	Miscellaneous	Miscellaneous	Educational vid	mp4	Primary Student,	Other License
https://www.awa2el.net/ar/search/#/	Awa2el	Awa2el	Jordan	Private	Creation and Cu	For Profit	Curriculum Suppor	Curriculum Suppor	Educational Vid	mp4,pdf	Primary Student,	Other License
http://en.tahriracademy.net/	tahrir academy	tahrir academy	Egypt	NGO/NPO	Creation	Non-profit	Curriculum Suppor	Curriculum Suppor	MOOC	mp4, html	Primary Student,	Creative Common License
https://aldarayn.com/mod/page/view	Aldarayn Found	Aldarayn Foundat	Egypt	NGO/NPO	Creation	Non-profit	Miscellaneous	Miscellaneous	MOOC		Secondary Stude	Other License
https://academy.hsoub.com/	Hsoub	Hsoub	UK	Private	Creation	For Profit	Digital literacy	Digital literacy	MOOC, books	pdf, html	Secondary Stude	Creative Common License
https://www.ien.edu.sa/#/	IEN Ithraia	Ministry of Educati	Saudi Arabia	Governmental	Creation	Non-profit	Curriculum Suppor	Curriculum Suppor	Educational Vid	pdf, mp4, html	Primary Student,	Other License

