

# THE PREVALENCE OF OPEN EDUCATIONAL RESOURCES INITIATIVES IN MALAYSIAN HIGHER EDUCATION INSTITUTIONS: A WEB ANALYSIS

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**Abstract:** Open Educational Resources (OER) enables free accessible knowledge to everyone. Higher education institutions in Malaysia have embarked on the OER movement to harness the full potential of open access to educational content in supporting online and distance learning, especially during the current pandemic COVID-19 outbreak. The emergence of OER have successfully made a significant amount of new and existing teaching and learning resources during the current pandemic. For educators and academicians, another significant advantage to OER is the ability to pick and choose of each resource they want to use. However, OER development in Malaysia is still in its infancy which leads for more studies on discoverability, accessibility, and retrieval. This study was conducted to investigate the current landscape of OER initiatives in Malaysian higher education institutions. The study employed a web analysis of 36 top Malaysian universities within the QS Asia University Ranking in 2022. The web analysis (February-July) encompassed a set of checklists on OER standard criteria as: platform hosting, accessibility search interface, a resource guide, alignment subject resources/course, OER repository, copyrights, and licensing, and OER metadata. The findings indicated merely 75% of the universities have initiated OER through their web presence. Only 37% of the universities fulfilled at least 4 criteria from the checklist indicating a need for higher learning to be more proactive in supporting OER development. This may include partnerships with other stakeholders such as libraries, faculties, and ICT centers to fully participate in the OER development following directions toward Sustainable Development Goals (SDGs), on achieving quality education.

**Keywords:** Open Educational Resources, OER, open education, distance education

## Introduction

Over this decade, there has been a rapid growth of open educational resources (OER) initiatives worldwide, especially among higher learning institutions. OER are seen as a game changer within the institution, enabling the use of high-quality free and open content (Zuhairi et al., 2020). The widespread use of open educational resources (OER) is making a significant difference in democratizing access to a high-quality of open education. In many countries, the growth of Open Educational Resources (OER) Initiatives has been shown to support inclusive access to education, as well as to improve the quality of learning outcomes (UNESCO, 2019). COVID-19 has heightened awareness of the need for OER in digital learning environments. The emergence of OER have

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successfully made a significant amount of new and existing teaching and learning resources during the current pandemic. For educators and academicians, another significant advantage to OER is the ability to pick and choose of each resource they want to use. Higher education institutions in Malaysia have embarked on the OER movement to harness the full potential of open access to educational content in supporting online and distance learning, especially essential during the current pandemic Covid19 outbreak (Ossiannilsson, 2021). The impact of the COVID-19 pandemic on education systems requires further development to ensure the continuity of the teaching and learning process (Noh et al., 2021). Moreover, the pandemic has taught us lessons about the value of a culture of sharing resources.

However, the establishment of the OER in Malaysia is still in its infancy which leads to issues of discoverability, accessibility, and retrieval. In Malaysia, open education initiatives have gotten to a slow to modest start, especially due to the lack of knowledge and understanding on OER. Several higher education institutions in Malaysia have reported to embarked on OER movement. However, there is no common understanding about how OER should be developed through open licences due to the lack of specific guidelines (Zainuddin et al., 2017).

OER is a worthwhile option to make education more accessible, affordable, shareable, and reusable. Adoption of the OER guidelines could foster collaboration and sharing amongst educational, training and research institutions to create learning resources, improve the pedagogical practices and professional growth of educators as well as lower the cost of access to quality resources for learners (Fulgencio & Asino, 2021). The adoption, expansion, and enculturation of OER with the aid of information and communication technology in Malaysian education will transform educational practices through the effective use of educational resources available with open licences. This study was conducted to investigate the current landscape of OER initiatives in Malaysian higher education institutions.

Through the descriptions and web analyses of this OER, the outcome of this study is expected to accelerate more higher institutions to engaged with OER initiatives project and help in promoting their OER visibility. This study also hopes to contribute to the extension of capacity building among stakeholders to create, access, re-use, adapt and redistribute OER as one of the critical components which can serve to drive the national agenda on OER in the current global direction and ensure that Malaysia higher institutions remains on par with other countries that already implement OER. The data from this study will be beneficial to help educators/faculty to create more high quality OER resources and promotes OER discovery in online learning platform.

## **Research Methodology**

The main objective of this study is to investigate the current landscape of OER initiatives in Malaysian Higher Education (MHE) institutions. The following research questions were put forward in guiding the study:

1. RQ1: What is the prevalence of OER in Malaysian Higher Education Institutions based on OER Evaluation Checklist?

2. RQ2: How does Malaysian Higher Education Institutions reflects their OER web initiatives represents based on the OER characteristic categorized under Quality, Content, and Infrastructure?

The study sample includes 36 top Malaysian universities within the QS Asia University Rankings 2022 with OER initiatives. The web analysis and OER Evaluation checklist was done starting 1<sup>st</sup> February 2022 until 31<sup>st</sup> July 2022 and evaluation criteria checklist was insert and analysed using Microsoft Excel Table.

For the study, a web analysis was conducted based on OER Evaluation checklist that was adapted from the following resources:

1. Checklist for Evaluating Open Educational Resources (OER) by Texas State University Libraries is licensed under CC BY 4.0
2. Checklist for Evaluating Open Educational Resources (OER)" by ACC Office of Instructional & Faculty Development is licensed under CC BY 4.0 OER Accessibility Toolkit (with Accessibility checklist) By UBC <https://open.ubc.ca/access/toolkits-access/oer-accessibility-toolkit/> licensed under CC BY 4.0

The checklist encompassed a set of OER standard criteria that was grouped into three main attributes of Quality, Content and Infrastructure as proposed by (Elias et al., 2020) quality aspects related with OER content and representation by quality evaluation metrics for OERs will help learners and teachers to find high-quality OERs and guide. In a nutshell, OER standard criteria that was grouped into three attributes of Quality, Content and Infrastructure are necessary to facilitate innovative in educational settings. Educators, academician and OER web administrator at the institution should always improve the quality of distance education and increase its web accessibility in a well-organised and structured way. Furthermore, high-quality OER content can save teachers significant time and effort on resource development and advance student learning inside and outside the classroom (Abd-Rabo, 2022).

### ***Quality***

- i. OER Guide: This will guide user to access various format such as: Texts, videos, software, and other materials that teachers use to assist students to meet the expectations for learning (Olcott Jr, 2012)
- ii. Copyrights and Licensing: According to (Asschenfeldt, 2004), a copyright license is an authorization by the copyright owner to enable another party to engage in behaviour that would otherwise be the exclusive right of the copyright owner, but without transferring title in those rights

### **Content**

- iii. Alignment Subject Resources/Course: A collection of subject and course divided into different subject areas. Each of the subject or course is described and indexed (Hilton, 2016)
- iv. OER Metadata: According to (Stankovic et al., 2014), OER metadata are data used to describe attributes of a resource as the secret sauce necessary to keep resources searchable and discoverable. A solution to this problem was found in introducing metadata, with the goal to improve the display of search results, thus making it easier for users to find the right web pages (Tavakoli et al., 2021a)
- v. OER Repository: This large repository functions like search engine that allows for users to search by subject or by course material type. Through OER repositories, resources are rendered accessible to learners and instructors on the World Wide Web (Atenas & Havemann, 2014; Clements et al., 2015)

### **Infrastructure**

- vi. Accessibility/Search Interface: The goal of web accessibility is to ensure that people with disabilities can use the web in equal conditions than others (Navarrete & Luján-Mora, 2018). In the field of OER, accessibility is twofold, the websites and the educational resources. Accessibility is critically important for all learners and should be considered in the design of all online materials. Identification of certain characteristics will assist in determining if materials will be fully accessible for all students (Darling-Hammond et al., 2020)
- vii. Platform Hosting: An OER knowledge and information base, including a web portal, is proposed in the form of a series of knowledge repositories (Khanna & Basak, 2013). Furthermore, OER platform is a web-based hosting site which offers engagement with various OER format as a resource for teaching and learning materials (Hanna & Wood, 2011).

### **Results and Discussion**

#### ***RQ1: What is the prevalence of OER in Malaysian Higher Education Institutions based on OER Evaluation Checklist?***

OER Evaluation Criteria on Table 1 shows, 75% (27/36) of the universities have initiated OER through their web presence and 25% (9/36) did not initiate any OER initiative projects. From the web analysis indicates that the growth of Open Education and OER initiative in Malaysian Higher Education was mostly pioneered by public universities with 70% (19/27) and 29% (8/27) private universities. As stated by (Cortinovis, 2020), Open Educational Resources (OERs), now available in many higher institutions platforms, but one of the factors limiting this positive impact is the difficulty to discover them.

*Table 1: OER Initiative Projects in Malaysian Higher Education Institutions*

Rank#	University	URL	Type
1	Universiti Malaysia Sabah	<a href="https://oer.ums.edu.my/">https://oer.ums.edu.my/</a>	Public
2	Universiti Putra Malaysia	<a href="http://putraoer.upm.edu.my/1/">http://putraoer.upm.edu.my/1/</a>	Public
3	Wawasan Open Universiti	<a href="https://oerasia-repository.wou.edu.my/">https://oerasia-repository.wou.edu.my/</a>	Private
4	HELP University	<a href="https://oer.help.edu.my/?page=1&amp;size=20">https://oer.help.edu.my/?page=1&amp;size=20</a>	Private
5	Universiti Teknologi Malaysia	<a href="http://ctl.utm.my/ocw/">http://ctl.utm.my/ocw/</a>	Public
6	Universiti Kebangsaan Malaysia	<a href="https://mooc.ukm.my/">https://mooc.ukm.my/</a>	Public
7	Universiti Teknologi MARA (UiTM)	<a href="https://ptar.uitm.edu.my/libguide/subjects/guide.php?subject=oer">https://ptar.uitm.edu.my/libguide/subjects/guide.php?subject=oer</a>	Public
8	IIUM	<a href="https://www.openlearning.com/IIUMMOOC/">https://www.openlearning.com/IIUMMOOC/</a>	Public
9	Universiti Malaysia Pahang	<a href="https://www.openlearning.com/UMPMOOC/">https://www.openlearning.com/UMPMOOC/</a>	Public
10	UNITEN	<a href="https://www.openlearning.com/uniten/">https://www.openlearning.com/uniten/</a>	Private
11	Universiti Malaysia Terengganu	<a href="https://www.openlearning.com/umtmooc/">https://www.openlearning.com/umtmooc/</a>	Public
12	UTAR	<a href="https://cee.utar.edu.my/Inspire/MOOCourse.php">https://cee.utar.edu.my/Inspire/MOOCourse.php</a>	Private
13	SEGi University	<a href="https://www.openlearning.com/segiuniversity/">https://www.openlearning.com/segiuniversity/</a>	Private
14	UniKL	<a href="http://mooc.unikl.edu.my/">http://mooc.unikl.edu.my/</a>	Private
15	Universiti Malaysia Kelantan (UMK)	<a href="https://mooc.umk.edu.my/main/">https://mooc.umk.edu.my/main/</a>	Public
16	Universiti Malaya (UM)	<a href="https://umlibguides.um.edu.my/oer">https://umlibguides.um.edu.my/oer</a>	Public
17	Taylors University	<a href="https://www.openlearning.com/taylorsuniversity/">https://www.openlearning.com/taylorsuniversity/</a>	Public
18	UCSI	<a href="https://www.openlearning.com/ucsiuniversity/">https://www.openlearning.com/ucsiuniversity/</a>	Public
19	Universiti Utara Malaysia	<a href="https://www.openlearning.com/courses/uum-moocs/?cl=1">https://www.openlearning.com/courses/uum-moocs/?cl=1</a>	Public
20	UPSI	<a href="https://mooc.upsi.edu.my/">https://mooc.upsi.edu.my/</a>	Public
21	UNIMAS	<a href="http://ocw.unimas.my/">http://ocw.unimas.my/</a>	Public
22	UTHM	<a href="https://ptta.uthm.edu.my/v3/240">https://ptta.uthm.edu.my/v3/240</a>	Public
23	Sunway University	<a href="https://sclibrary.sunway.edu.my/openeducationalresources">https://sclibrary.sunway.edu.my/openeducationalresources</a>	Private
24	Universiti Sains Malaysia	<a href="http://ocw.usm.my/">http://ocw.usm.my/</a>	Public
25	UTEM	<a href="https://ocw.utm.edu.my/web/">https://ocw.utm.edu.my/web/</a>	Public
26	UNISZA	<a href="https://ocw.unisza.edu.my/">https://ocw.unisza.edu.my/</a>	Public

27	Multimedia University	<a href="https://www.mmu.edu.my/mog/">https://www.mmu.edu.my/mog/</a>	Private
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As seen in (Table 2), only 10 universities (37%) met at least 4 criteria from the checklist which indicated a need for higher learning to become more proactive in supporting the development of OER. These evaluation checklist indicators represent good practices in OER platforms to support online learning by Malaysian educators. This findings was align as Malaysia has high potential for implementing effective OER delivery, as long as students' and academics' awareness and acceptance of OER are addressed adequately (Ibrahim et al., 2021).

Table 2: OER Evaluation Criteria Among Malaysian Higher Education Institutions

University	OER Evaluation Criteria	Percentage (%)
MMU	1	3%
USM, UTEM, UNISZA	2	11%
UM, Taylors University, UCSI, UUM, UPSI, UNIMAS, UTHM, Sunway,	3	37%
UKM, UiTM, IIUM, UMP, UNITEN, UMT, UTAR, SEGi, UniKL, UMK	4	37%
WOU, HELP, UTM	5	11%
UMS, UPM,	6	7%

**RQ2: How does Malaysian Higher Education Institutions reflects their OER web initiatives represents based on the OER characteristic categorized under Quality, Content, and Infrastructure?**

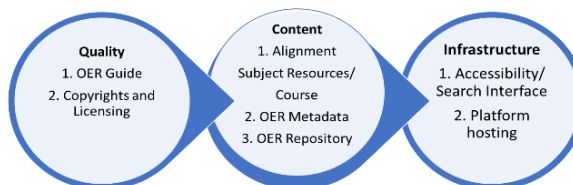


Figure 1. OER Attributes: Quality, Content & Infrastructure

As seen in (Figure 1), after the OER Evaluation Checklist completed, there were 3 attributes represents each evaluation that been categorized under Quality, Content, and Infrastructure from the web analysis. The most important criteria for the quality of OER is how well students learn by using them. Finding high-quality open educational resources used to be a challenge, but several curated OER resources have made the task much easier for educators. According to (Elias et al., 2020), OER quality assessment has become essential to support learners and teachers especially in finding high-quality OERs.

Table 3: OER Evaluation Criteria Checklist based on Quality, Content & Infrastructure

Quality	Content	Infrastructure
OER Guide (7/19%)	Alignment/Subject Resources Course (17/47%)	Accessibility/Search Interface (18/50%)
Copyright & Licensing (22/61%)	OER Metadata Records (5/15%)	Platform Hosting (Library) (6/16%) Platform Hosting (Faculty/Academics/ICT) (18/50%)
OER Repository (5/15%)		

As seen in (Table 3) indicates that only 15% of the universities meet the criteria for OER Repository and OER Metadata Records which the findings are compatible with exploratory study by (Deus & Barbosa, 2020) on the use of metadata in OER was seen as the main challenges in finding and retrieving OER. Generally, OERs are stored in digital repositories and use metadata to describe their content. Because of factors such as dissemination and use of resources, the OER repository collections are increasing rapidly, along with your metadata. Recent study from (Tavakoli et al., 2021b) highlights on the precise in OER metadata is critical for providing high-quality services such as search and recommendation.

Moreover, metadata facilitates the process of automatic OER quality control as the continuously increasing number of OERs makes manual quality control extremely difficult. These findings had also shown that Malaysian Higher Education Institutions are aware on copyright and licensing works when initiate OER initiatives with 22 out of 36 universities (61%) already acknowledge this at their OER websites. Similarities for the findings was shown for criteria: Accessibility/Search Interface (18/50%) and Platform Hosting which indicates 50% of the higher institutions meet under the characteristics of Infrastructure.

## **Conclusion**

The findings indicate concerns around the quality of OER have been significant in educational institutions. Initiatives of OER at an institutional level provides an opportunity for existing quality measures to be reconsidered/re-evaluated from time to time. It is also important especially for OER websites team administrator to be efficiently responsive with a wide range of maintaining, updating, and troubleshooting these websites. The widespread use of open educational resources OER is making a significant difference in democratizing access to a high-quality open education. On the view of OER landscape in Malaysia, it is very important to include partnerships with other stakeholders such as libraries, faculties, and ICT centres to fully participate in the OER development especially following directions towards Sustainable Development Goals (SDGs), on achieving quality education. As a recommendation, this partnership collaborations for higher institutions desiring to participate more fully in reusing and repurposing their OER resources. More fostered collaboration among libraries and various departments will produce best practices in expanding the range of OER movement in fostering open education. Finally, the conclusions drawn from this study suggest the need of further analysis on the current practices of OER initiatives and OER projects among higher institutions in Malaysia from different perspectives.

## **Declaration of Interest Statement**

The authors declare that they have no conflict of interests.

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