



# Push Start: OER & iOER for Educators

*OER & iOER*

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This book has been designed to equip educators with the skills they need to confidently find, use, and create open educational resources (OER). As such, the book is divided into 8 chapters covering important aspects of working with OER:

- Introduction to OER
- Open Licensing
- Finding OER
- UNESCO Recommendation on OER
- Showcase of IOER
- Learn about OER and AI
- Universal Design for Learning
- Dubai Declaration on Open Educational Resources (OER)



# CHAPTER 1: INTRODUCTION TO OER



# Introduction to Open Educational Resources

In an increasingly interconnected world, access to high-quality educational resources has become both a necessity and a challenge. Open Educational Resources (OER) offer a promising solution by providing freely accessible, openly licensed materials that can be used, adapted, and shared by educators and learners alike. This chapter provides a comprehensive overview of OER, starting with a foundational introduction to what they are and their historical background. We will explore the defining characteristics of OER, distinguishing them from resources that do not meet the criteria. Additionally, the chapter will delve into the benefits of using OER, highlighting how they can enhance educational outcomes and foster innovation in teaching and learning. Finally, we will discuss the challenges associated with OER adoption and use, providing a balanced perspective on the opportunities and obstacles in the OER landscape.



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“Open Educational Resources concept: What is an OER?” by UNESCO is available under a Creative Commons CC BY SA license.



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“Open Educational Resources (OER) and innovation: Why OER?” by UNESCO is available under a Creative Commons CC BY SA license.

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## Background

The open source software community gave rise to the open education movement, which aims to make more people able to access knowledge by using free, public content. OER has always been a local effort, with a lot of different people and groups working to make it better. The OpenCourseWare Initiative at MIT, which began in 2001, was one of the first big projects. Bliss and Smith (2017) break down the background of open education, which includes the following:

Much of our attention focused on OER's usefulness at providing knowledge in its original form to those who otherwise might not have access. The implicit goal was to equalize access to disadvantaged and advantaged peoples of the world – in MIT's language, to create 'a shared intellectual Common.'<sup>1</sup>

Although OER is often associated with North America, its influence extends globally, as evidenced by the timeline of OER events. Notably, there was significant growth following the UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing Countries in 2002. The final declaration from the conference emphasized that participants "expressed their... wish to develop together a universal educational resource available for the whole of humanity, to be referred to henceforth as Open Educational Resources."<sup>2</sup>



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**Explore Further** To learn more about the history of OER, review: *A Brief History of Open Educational Resource* and *OER – A Historical Perspective*.

Following the emergence of open education in the early 2000s, the increasing interest in open courseware, particularly open textbooks, significantly advanced the movement. Nonetheless, the progression toward enhanced OER awareness among educators remains gradual. A 2018 survey conducted in the U.S. revealed that 47% of educators were unfamiliar with OER, while the remaining educators had varying levels of awareness. Although a substantial number of educators still lack familiarity with OER, the percentage has decreased by 19% since 2014, indicating a gradual increase in awareness.<sup>3</sup>

## What is an OER?

The most comprehensive definition of OER available today is provided by the Hewlett Foundation<sup>4</sup>:

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1. [1]
2. [2]
3. <sup>5</sup>
4. <sup>6</sup>

5. [3]
6. [4]

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Free Minimalist Dictionary Definition Funny Quote Family Instagram Post by EUGENIA IDA EDWARD

**Open Educational Resources** (OER) encompass educational materials that are openly licensed, freely accessible, and easily adaptable and redistributable by users. Although OER is often associated primarily with open textbooks, it actually includes a wide range of resources, such as videos, images, lesson plans, coding and software, and even complete courses.



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“What is OER? [Youtube]” by The Council of Chief State School Officers is available under a Creative Commons CC-BY 4.0 licence.

To be classified as an open resource, a material must meet the following criteria, commonly referred to as the 5Rs:

- Reuse – Use a resource in any context you choose.
- Remix – Combine multiple resources to create a new, integrated resource.<sup>7</sup>
- Revise – Make a copy of a resource and modify it to suit the local context.<sup>8</sup>
- Retain – Keep a copy of the resource and control it permanently.
- Redistribute – The right to share what you’ve created freely.<sup>9</sup>

- 7. <sup>10</sup>
- 8. <sup>11</sup>
- 9. <sup>12</sup>
- 10. [5]
- 11. [6]
- 12. [7]

Given such a broad definition that encompasses any educational material as long as it is free to access and openly licensed, one might find it simpler to ask, “What isn’t an OER?”

## What is Not an OER?

If a resource has a traditional copyright license or requires a fee to be accessed, it is not considered an OER. For example, most materials accessed through the library’s subscriptions cannot be altered, remixed, or redistributed. These materials require special permission to use and are therefore not “open.” Similarly, YouTube’s standard license includes a traditional copyright statement that does not allow videos to be retained (saved), altered, or remixed. Materials that can be accessed freely by students (via the general internet or a library subscription) but do not meet the 5Rs are referred to as accessible resources. Learn more about how you may use accessible resources in the Open Licensing chapter.

A resource is not considered an OER if it has a traditional copyright license or requires a fee for access. For instance, most materials accessed through library subscriptions cannot be modified, remixed, or redistributed, as they require special permission for use and are thus not “open.” Similarly, YouTube’s standard license includes a traditional copyright statement that prohibits videos from being saved, altered, or remixed. Materials that are freely accessible to students—whether via the general internet or a library subscription—but do not meet the 5Rs criteria are referred to as accessible resources. For more information on how to use accessible resources, please refer to the Copyright & Licensing chapter.

**Table 1** below explains the difference between OER and other resources often mislabeled as OER.<sup>13</sup>

**Table 1: Comparisons of Learning Resources**

Material Type	Openly Licensed	Freely Available	Modifiable
Open educational resources	Yes	Yes	Yes
Accessible online resources under all rights reserved copyright	No	Yes	No
Digital materials available through the Library	No	Maybe	No
Print materials available through the Library	No	Maybe	No

The definitions of “accessible resources” and “open educational resources” are a combination of permission (license) and cost. Click each quadrant below to see what you can do with different materials.



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27#h5p-3

### Activity

Create a list of the free materials you currently use in your classes. Then, categorize each resource as OER, accessible, or other. How many of these resources are OER that your students are using?

13. <sup>14</sup>
14. [8]

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## Benefits of Using OER

### Benefits for Students

Open Educational Resources offer numerous benefits for students, enhancing their learning experience in various ways. OER are freely accessible, saving students money on textbooks and other materials. They can be accessed anytime and anywhere with an internet connection, providing flexibility to support diverse learning needs and schedules. Content is continuously updated by educators and experts, ensuring access to current information. OER often include videos, interactive simulations, quizzes – catering to different learning styles while promoting a culture of lifelong learning. Educators can customize OER to fit specific teaching needs for more personalized experiences. Collaboration is encouraged through sharing resources among students and educators leading to a richer educational experience overall.



An interactive H5P element has been excluded from this version of the text. You can view it online here:  
<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=27#h5p-1>

OER empower students by providing accessible and affordable learning materials that enhance their educational experience.

### Benefits for Educators

While cost savings are a significant factor in favor of adopting open educational resources (OER), educators can start incorporating OER into their courses without eliminating the paid resources they find beneficial. Although creating a full OER textbook may seem daunting, gradually integrating smaller OER as supplementary materials can be done over time. After a few years, educators may realize that they have customized so many small OER to fit their course content that these resources become more effective than the paid materials they previously used. The flexibility to adapt OER to meet instructional needs is often the most appealing feature, as OER are openly licensed, allowing educators to freely edit, reorder, and remix the materials in various ways.



An interactive H5P element has been excluded from this version of the text. You can view it online here:  
<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=27#h5p-2>

### Benefits for the Institution

The advantages of using OER are evident for both students and educators, but research also indicates that institutions experience overall benefits. For instance, studies have shown that the use of OER can enhance student retention, progress, and completion rates by reducing student costs.<sup>15</sup> Additionally, a recent report from Achieving the Dream, titled *OER at Scale: The Academic and Economic Outcomes of Achieving the Dream's OER Degree Initiative*, reveals that institutions strategically supporting and offering OER courses can achieve a financial return on investment. The report indicates that students enrolled in OER courses often take more course credits than those in non-OER courses, leading to increased tuition revenue for the institution.<sup>16</sup>

Activity

15. <sup>17</sup>
16. <sup>18</sup>
17. [21]
18. [22]

Reflect on the courses in your program. List the benefits to the students, to you as the educators, and to any institutions if some of these courses were using only OER materials.

## Challenges of Using OER



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=27#h5p-3>



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This chapter has offered a brief overview of OER, their uses, and the surrounding movement. In the next chapter, we will discuss key considerations to keep in mind when adopting or creating OER for the first time.

## Footnotes

1. Bliss, T J and Smith, M. 2017. A Brief History of Open Educational Resources. In: Jhangiani, R S and Biswas-Diener, R. (Eds.) *Open: The Philosophy and Practices that are Revolutionizing Education and Science* (pp. 9–27). London: Ubiquity Press. DOI: <https://doi.org/10.5334/bbc.b> ↵
2. UNESCO. (2002). *Forum on the Impact of Open Courseware for Higher Education in Developing Countries: Final Report* (CI.2002/CONF.803/CLD.1). UNESCO. p.6. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000128515> ↵
3. Seaman, J.E., & Seaman, J. (2019). *Inflection Point: Educational Resources in U.S. Higher Education*. (pp. 25-26) ↵
4. William & Flore Hewlett Foundation. (n.d.). *OER defined*. Retrieved from <https://hewlett.org/strategy/open-educational-resources/> ↵
5. The resource must explicitly state that it is available for remixing and redistribution by others. Some open licences may include restrictions on how others may use the resource. You can read about this more in the Copyright & Licensing chapter. ↵
6. Although all OER are openly licensed, many are released in formats that do not easily allow for adaptation. ↵
7. Council of Chief State School Officers, (2016). "What is OER?" Youtube. Retrieved from <https://www.youtube.com/watch?v=LDTcMKIDQw&t> ↵
8. Although both print and digital materials are free to access for a library's users, that does not mean that they are free to access for everyone. As well, some digital materials have a licence that permits distribution or reuse with a specific group (i.e., current students), but the licences will not allow modification. ↵
9. The Daily. Statistics Canada. (2018). *Tuition Fees for Degree Programs, 2018/2019*. Retrieved from <https://www150.statcan.gc.ca/n1/daily-quotidien/180905/dq180905b-eng.htm> ↵
10. Florida Virtual Campus. (2018). *2018 student textbook and course materials survey: Executive summary*. Retrieved from [https://www.flbog.edu/documents\\_meetings/0290\\_1174\\_8926\\_6.3.2%2003a\\_FLVC\\_SurveyEXSUM.pdf](https://www.flbog.edu/documents_meetings/0290_1174_8926_6.3.2%2003a_FLVC_SurveyEXSUM.pdf) ↵
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14. Goldrick-Rab, S. & Cady, C. (2018). *Supporting community college completion with a culture of caring: A case study of Amarillo College*. Retrieved from <https://hope4college.com/>

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- supporting-community-college-completion-with-a-culture-of-caring-a-case-study-of-amarillo-college/ ↵
15. Maynard, M. Meyer, S.B. Perlman, C.M. & Kirkpatrick, S.I. (2018). *Experiences of Food Insecurity Among Undergraduate Students: "You Can't Starve Yourself Through School"*. Retrieved from [journals.sfu.ca/cjhe/index.php/cjhe/article/download/188121/pdf](https://journals.sfu.ca/cjhe/index.php/cjhe/article/download/188121/pdf)/ ↵
  16. "Does Inclusive Access save students money?" (n.d.) Inclusiveaccess.org. Retrieved from <https://www.inclusiveaccess.org/facts/savings-or-spin>. ↵
  17. Although OER are free for anyone to access, this access is still limited by who has access to the Internet. Still, since OER can be freely redistributed, some individuals have printed OER for dissemination in areas that do not have Internet access. ↵
  18. Hodgkinson-Williams, C. & Arinto, P. B. (2017). *Adoption and impact of OER in the Global South*. Cape Town & Ottawa: African Minds, International Development Research Centre & Research on Open Educational Resources. DOI: 10.5281/zenodo.1005330 ↵
  19. The Benefits for Instructors section of this chapter was adapted from the SUNY OER Community Course, licensed CC BY 4.0. ↵
  20. Lieberman, M. Inside Higher Ed. (2019). *Slow Burn for OER Adoption, Awareness*. Retrieved from <https://www.insidehighered.com/digital-learning/article/2019/01/09/oer-adoptions-awareness-continue-grow-many-faculty-members-still> ↵
  21. Hilton III, J. L., Fischer, L., Wiley, D., & William, L. (2016). Maintaining momentum toward graduation: OER and the course throughput rate. *The International Review of Research in Open and Distributed Learning*, 17(6). <https://doi.org/10.19173/irrodl.v17i6.2686> ↵
  22. "Open Educational Resources: Basics & Beyond" by Jamie Holmes, Pamela Louderback, Ed.D, & Ann Raia, Council for Online Learning Excellence (COLE) is licensed under CC BY 4.0 ↵
  23. As of Fall 2022, several large nonprofit organizations are in development of open homework platforms, including LibreText and BCcampus. Access to these math, science, and business platforms should be announced in 2023. ↵
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# Considerations for Using or Creating OER

In the evolving landscape of education, Open Educational Resources (OER) offer innovative ways to enhance learning and teaching. This chapter explores key considerations for using or creating OER, focusing on several critical aspects. First, it examines how incorporating OER can improve course content and delivery. Understanding the audience is crucial for tailoring OER to meet specific learner needs effectively. The chapter also addresses the importance of determining whether the necessary OER already exists and how students will access these resources. Finally, it highlights the training and information required to effectively use OER. By addressing these factors, educators can make informed decisions and maximize the impact of OER in their teaching practices.

## How will using OER improve your course?

When integrating OER into your course, you have the opportunity to critically evaluate your teaching methods and alter them to better meet your needs. Open education is a movement that supports innovative teaching. By using OER in a course, you are opening up new possibilities for greater diversification, multidisciplinary learning, and student engagement.

One way to go about this is to use **backward design** for your project.

Backward design is a framework for planning your course around its intended outcomes.<sup>1</sup> Backwards design is a way to solidify more abstract course outcomes, such as critical and creative thinking, in order to ensure that students are actively engaged with the material they are being taught. There are three stages to the backward design process:

1. <sup>2</sup>
2. [2]



Backward Design Chart by EUGENIA IDA EDWARD

1. Identify desired results,
2. Determine acceptable evidence, and
3. Plan learning experiences and instruction.<sup>3</sup>

You might notice that this approach does not end with “create and/or curate educational content.” Instead, it ends with more planning. The purpose of backward design is not to be done with your course transformation in a quick 3-step process. Instead, it asks educators to question the processes and materials they currently use and to start over by plotting out what is needed to meet your course outcomes.

*Considerations: Impact*

Thinking critically about the purpose of your course and its learning outcomes helps to ensure an excellent learning experience for your students. Ask yourself:

- What do I want my students to learn?
- How will I communicate to students that the concepts I present are valuable?
- How will I assess my students’ understanding of core concepts?

3. <sup>4</sup>

4. [3]

## Who is your audience?

Once you've decided what you want students to learn, you are ready to think about what resources you can use. As you begin to look for OER for your course, it's important to consider your target audience(s).

### *Considerations: Audience*

- Do you have a primary audience? For example, majors or non-majors.
- Does your audience belong to a specific cultural or geographic background?
- Are there national, provincial, or local contexts that you want to incorporate into an OER?

Although your OER may be used by educators around the world, you can create it with your local audience in mind. Often times, culturally relevant examples allow students to engage with work on a more personal level. Although perfectly 'open' resources would not include culturally specific examples, jargon, or humor, the ability to alter OER allows for adaptation to fit new audiences, without sacrificing engagement for the original target audience.<sup>5</sup>

## Does the OER you need already exist?

It is generally a good idea to look around at what content is available for your course before creating something new. There are three reasons for this:

1. The OER you want to create/use may already exist in the format you want, or you may be able to easily convert it to the appropriate format.
2. You may be able to remix an existing OER in order to meet your course needs.
3. Your own teaching materials could be adapted for use as OER. For example, lecture notes can be an invaluable teaching aid for courses with no excellent textbooks available. Consider asking students who have taken the course what they feel are the most useful resources for the course.

More information about locating OER is available in the *Finding OER* Chapter.

### *Considerations: Availability*

- What changes would you need to make to share your own content as an OER? (See the *Copyright* Chapter for more information)

5. <sup>6</sup>

6. [4]

- What types and formats of OER are you looking for?
- What concepts or topics are missing in your current learning materials? There may be OER that can supplement these areas.

## How will students access your course OER?

Whether you are using an OER as-is or creating something from scratch, one of the first considerations you should take into account is how you will share the resource(s) with students in your class.

### *Considerations: Access*

- Will you host OER in the LMS (Brightspace) or a third party platform?
- How can you make it evident to your students that they are using an OER? How can you educate them about the benefits and use of an OER?
- During your class, how will students access the OER?

## What training or information do you need to use OER?

Using an OER can feel daunting, especially if you've not considered locating, licensing, and hosting OER before. Integrating an existing OER into your curriculum doesn't need to be exclusively your job. Training, like the module you are reading now, can provide basic information on these topics.

### *Activity*

- What aspects of OER are you most and least comfortable with? List at least three activities you could do to increase your comfort level.

This chapter outlined some high level considerations to keep in mind when transforming your course to use OER. One aspect of OER not covered here, however, is how to make an OER "open" and what that means. To answer that question, in the next chapter we'll discuss the role that copyright plays in an OER's development and dissemination.

## Footnotes

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1. This chapter was adapted from “Considerations before using or creating an OER” from The ABOER Starter Kit, by Technologies in Education at the Faculty of Education, the University of Alberta, available under a Creative Commons Attribution 4.0 International License. ↵
2. AvenuesdotOrg. (2013). *Grant Wiggins - Understanding by Design, Part 1*. [Youtube video]. Retrieved from <https://www.youtube.com/watch?v=4isSHf3SBuQ> ↵
3. Wiggins, G., & McTighe, J. (2005). *Understanding by design*. Alexandria: Association for Supervision and Curriculum Development. ↵
4. McNally, M.B. & Christiansen, E.G. (2019). *Open Enough? Eight Factors to Consider when Transitioning from Closed to Open Resources and Courses: A Conceptual Framework*. Retrieved from <https://firstmonday.org/ojs/index.php/fm/article/view/9180/7808#p3> ↵



# CHAPTER 2: OPEN LICENSING



# Open Licensing



All OER are distributed under some form of open license, which provides a set of authorized permissions from the rights-holder for any and all users. The most popular of these licenses are Creative Commons (CC) licenses, which are customizable copyright licenses that enable others to reuse, adapt, and republish content with minimal or no restrictions. CC licenses allow creators to clearly state how their works can be used by others. When you encounter a work with a CC license, you can easily understand how to incorporate it into your course. By assigning an open license to your own work, you grant all users the rights specified by the license, and you cannot restrict reuse by certain individuals or groups without altering the license itself.

Creative Commons licenses will be explored in more detail in the next chapter. However, there are other open licenses that can be applied to educational materials. A few of these licenses are described below:

- **GNU Free Documentation License:** A copyleft license grants the right to copy, redistribute, and modify a resource, with the condition that all copies and derivative works must be made available under the same license. While copies can be sold commercially, the original document or source code must also be accessible to the user.<sup>1</sup>
- **Free Art License:** The FAL “grants the right to freely copy, distribute, and modify creative works without infringing the author’s rights.” It is intended for use with artistic works rather than documents.<sup>3</sup>

### Dig Deeper

If you’re interested in learning more about open licenses, feel free to explore the Free Software Foundation’s information on copyleft licenses, some of the first licenses used for open content.<sup>5</sup>

## Why Open Licenses?

Open licenses are fundamental to what qualifies an educational resource as an OER. The adaptability and reusability of OER ensure that they are not only free to access but also available for educators to modify for their courses. For instance, in the figure below, an openly licensed image has been traced to enhance readability for users.

1. <sup>2</sup>

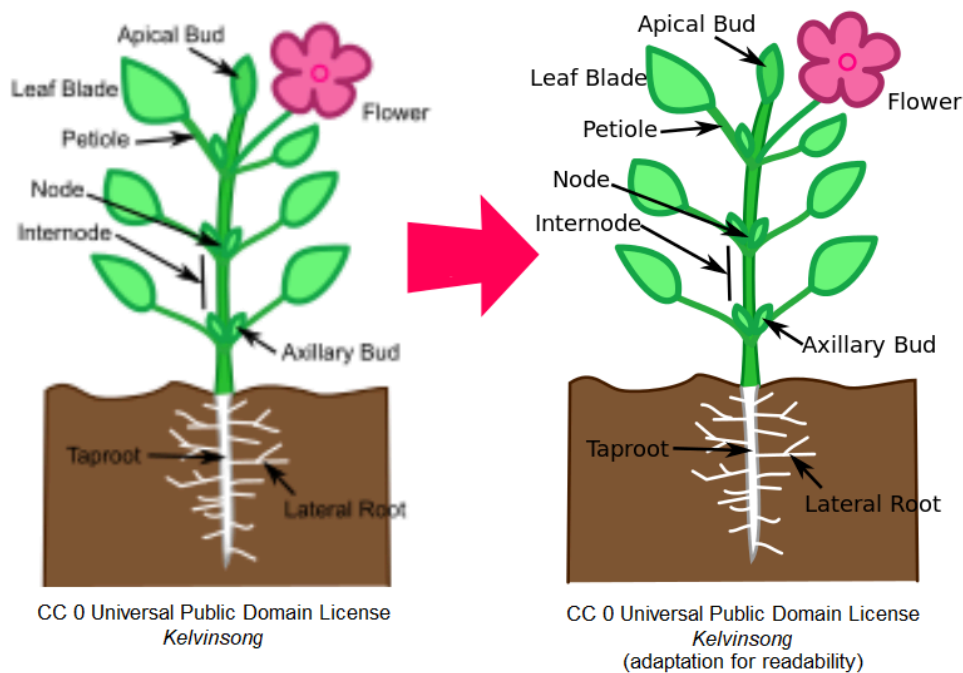
2. [5]

3. <sup>4</sup>

4. [6]

5. <sup>6</sup>

6. [7]



“Adaptation in action” by Abbey Elder, licensed CC 0 1.0, was adapted from “Copyrighted source to tracing” by Kelvinsong, also licensed CC 0 1.0. This image was originally used to represent an improper recreation of a copyrighted work via tracing. In this example, it shows how an already open work can be *legally* recreated via tracing for readability.

Early in the open education movement, David Wiley introduced what became one of the foundational tenets of the field: the 5Rs<sup>7</sup>. These five attributes lay out what it means for something to be truly “open”.

The 5 Rs include:

- **Reuse** – Use a resource in any context you choose.
- **Remix** – Combine multiple resources to create a new, integrated resource.
- **Revise** – Make a copy of a resource and modify it to suit the local context.
- **Retain** – Keep a copy of the resource and control it permanently.
- **Redistribute** – The right to share what you’ve created freely.

While the “redistribute” and “revise” rights are the most commonly exercised rights in open education, each of the five plays an important role in the utility of an open educational resource. For example, without the right to “remix” materials, an educator who teaches an interdisciplinary course would not be able to combine two disparate OER into a new resource that more closely fits their needs.



An interactive H5P element has been excluded from this version of the text. You can view it online here:  
<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=34#h5p-28>

7. <sup>8</sup>

8. [8]





In the next chapter, we'll look at Creative Commons licenses and how they facilitate the expression of the 5 Rs in unique ways.

## Footnotes

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1. [https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h\\_wr02281.html#copyrightDefined](https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h_wr02281.html#copyrightDefined) ↵
2. <https://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/wr04784.html> ↵
3. Attribution: "Licensing" and "Public Domain" were adapted in part from UH OER Training by Billy Meinke, licensed CC BY 4.0. ↵
4. Of course, standard citation procedures still apply for creative works in the public domain. You cannot claim another's work as your own. ↵
5. Free Software Foundation. "GNU Free Documentation License." 2008. <https://www.gnu.org/licenses/fdl.html> ↵
6. Copyleft Attitude. "Free Art License 1.3." 2007. <http://artlibre.org/licence/lal/en/> ↵
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8. Wiley, David. "Defining the 'Open' in Open Content and Open Educational Resources." Open Content blog, 2014. <http://opencontent.org/definition/> ↵

# Creative Commons Licences

All OER are made available under some type of **open license**, a set of authorized permissions from the rights-holder of a work for any and all users. The most popular of these licenses are **Creative Commons (CC)** licenses, customizable copyright licenses that allow others to reuse, adapt, and re-publish content with few or no restrictions. CC licenses allow creators to explain in plain language how their works can be used by others. If you locate a work with a CC license, you can easily determine how you can incorporate the work into your course. If you assign an open license to your work, you allow any user to exercise the rights allowed under the license, and cannot restrict reuse by certain individuals or parties without changing the license itself.





CC Logo by Creative Commons, used under the CC Trademark Policy

## The Four Components of Creative Commons Licenses



**Attribution (BY)** Proper attribution must be given to the original creator of the work whenever a portion of their work is reused or adapted. This includes a link to the original work, information about the author, and information about the original work's license.



**Share-Alike (SA)** Iterations of the original work must be made available under the same license terms.



**Non-Commercial (NC)** The work cannot be sold at a profit or used for commercial means such as for-profit advertising. Copies of the work can be purchased in print and given away or sold at cost.



**No Derivatives (ND)** The work cannot be altered or "remixed." Only identical copies of the work can be redistributed without additional permission from the creator.

The four components, or elements, of Creative Commons Licenses are expressed using the icons above. These elements can be mixed and matched to create a total of **six Creative Commons licenses**.<sup>1</sup> These licenses are often expressed in graphic form using CC buttons.<sup>3</sup>

## The Four "Open" CC Licenses

There are strengths and weaknesses to each Creative Commons license you might apply to your OER. To help you make an informed decision, a short description of each license that can be applied to OER is provided below.

Click the 'info' button for more information.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=42#h5p-4>

You can learn more about the individual CC licenses on the Creative Commons website.



1. <sup>2</sup>

2. [1]

3. <sup>4</sup>

4. [2]



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## Choosing a Licence for Your Work

Choosing a CC license can be confusing at first, but the online *Choose a License* tool from Creative Commons can help. This tool generates a license based on which rights you want to retain and which you would like to give to users. For example, if you want to share your work and allow others to adapt it, but you do not want others to be able to sell your work, you might consider using the CC-BY-NC license.

Before you choose a license, keep in mind that an OER should be able to exercise all the 5 Rs of open content we discussed in the previous chapter. Not all of the CC licenses meet this definition. Specifically, the CC-BY-ND and CC-BY-NC-ND licenses do not allow revising or remixing content, two of the most significant freedoms of OER for many educators.

### Wiley’s 5Rs and Creative Commons Licensing

	Retain <small>Make and own a copy</small>	Reuse <small>Use in a wide range of ways</small>	Revise <small>Adapt, modify, and improve</small>	Remix <small>Combine two or more</small>	Redistribute <small>Share with others</small>	
Public Domain	✓	✓	✓	✓	✓	 OER ↓ Not OER ↓
CC-BY	✓	✓	✓	✓	✓	
CC-BY-SA	✓	✓	same license	same license	✓	
CC-BY-NC	✓	✓	✓	✓	non-commercial	
CC-BY-NC-SA	✓	✓	same license	same license	non-commercial	
CC-BY-ND	✓	✓	personal use only	personal use only	✓	
CC-BY-NC-ND	✓	✓	personal use only	personal use only	non-commercial	

**Attribution:** “Wileys 5Rs and Creative Commons Licensing” is by Krysta McNutt, CC-BY 4.0. To view the full version, visit the [Google Drawing](#).

## Implementing a CC Licence

Creative Commons has an online Marking Guide that demonstrates how to add your chosen CC license on different types of media. Making your license obvious on whatever item you are sharing is an important part of the dissemination process for OER: otherwise, users won’t know what license you’ve chosen! No matter the format, there are some standards you can follow:

- Make it clear
- Make it visible

- Provide links (to the license and the work)

**Dig Deeper:** How comfortable are you making your work “open”? After reviewing this section and the *Choosing and Applying a CC License* chapter in the Creative Commons Certificate Course, reflect on the following questions<sup>5</sup>:

- **Am I OK with someone using my work without attribution or is it important I get credit?**
- **Am I OK with other people copying and distributing my content without asking my permission?**
- **What is the definition of “noncommercial” and “commercial” when used in the context of a CC license? Am I OK with “commercial use” of my content? How might this limit the sharing of the work?**
- **What is the definition of “non derivative” when used in the context of a CC license? Am I OK with other people changing and adapting the content? How might this limit the sharing of the work?**

## Attribution vs Citation when Using Other’s Work

Although there are different rules for each license, every CC license includes the Attribution component which requires that users provide proper attribution for an original work being shared or adapted. Attribution is a similar process to citing academic works in a paper, but there are some key differences. The following table outlines some of the ways in which citations and attribution are similar and different:

**Attribution: This table was adapted by Abbey Elder from “Citation vs. Attribution” by Lauri Aesoph, licensed CC BY 4.0.**

Citation	Attribution
Purpose is academic (e.g. avoiding plagiarism)	Purpose is legal (e.g. following licensing regulations)
Does NOT typically include licensing information for the work	Typically includes licensing information for the work
Used to quote or paraphrase a limited portion of a work	Used to quote or paraphrase all or a portion of a work
Can paraphrase, but cannot typically change the work’s meaning	Can change the work under Fair Dealing or with advance permission (e.g., under most CC licenses)
Many citation styles are available (e.g., APA, Chicago, and MLA)	Attribution statement styles are still emerging, but there are some defined best practices
Cited resources are typically placed in a reference list	Attribution statements are typically found near the work used (e.g., below an image)

One easy way to remember the requirements for attribution is the acronym T.A.S.L.:

- T = Title of work
- A = Author or creator. Link to a page with their contact information, when possible.

5. <sup>6</sup>

6. [4]

- S = Source. Where can you find the original work?
- L = License. This can be expressed using the abbreviated form (e.g., CC-BY 4.0) and then linked to the full statement.

If the final work is digital, each of these elements can be linked to the original source to provide additional information. If the final work is in print or is an audio/visual file, consider posting the attribution information in a separate online page or mentioning the attribution as part of the credits within the media itself.

In this chapter, we have discussed how Creative Commons licenses work and how you can use these licenses for publishing or sharing open content. In the next chapter, we'll explore how you can find existing OER to use in your course.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=42#h5p-6>

## Footnotes

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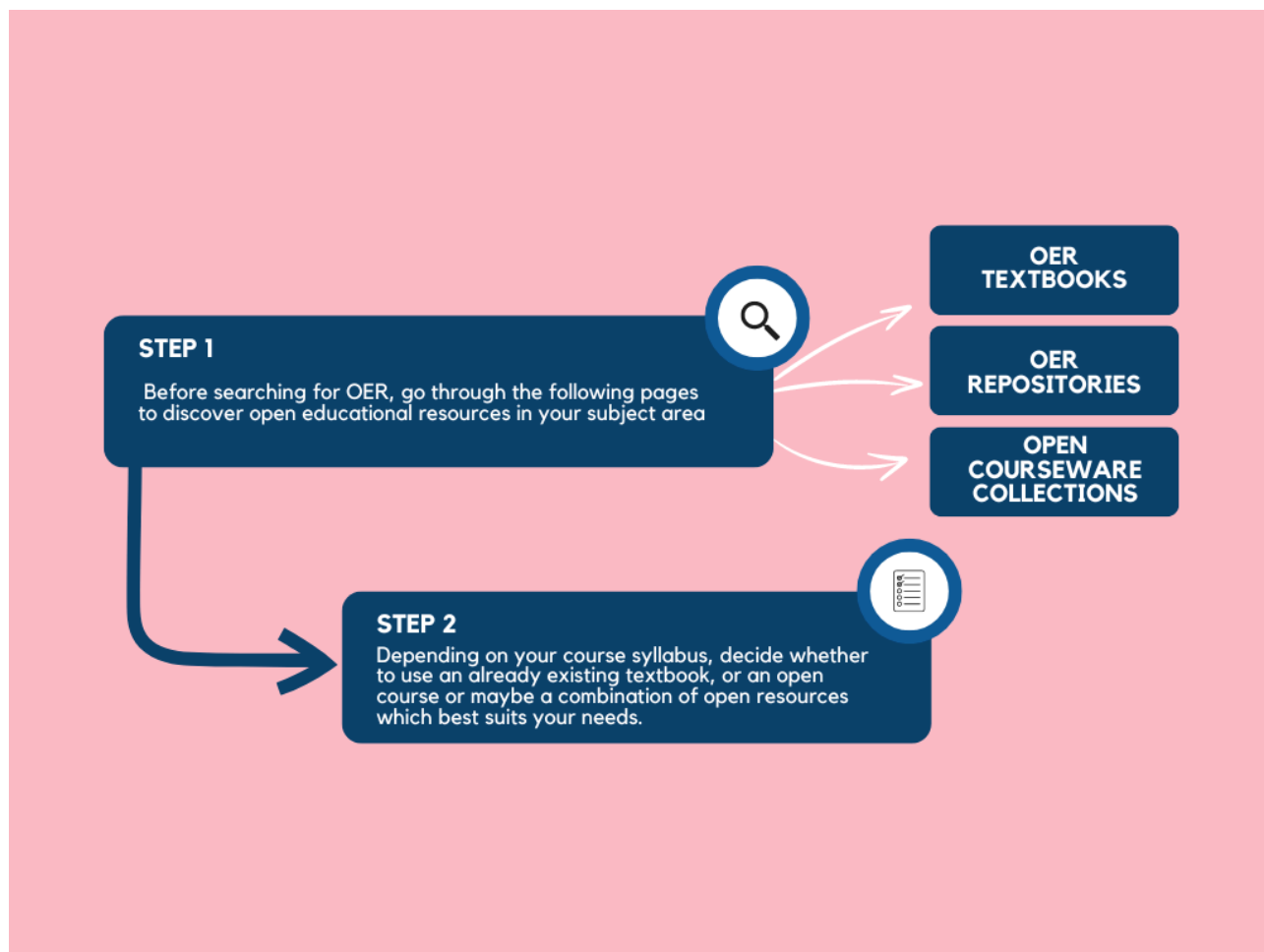
1. The No Derivatives and Share Alike components are incompatible and cannot be combined under one licence. ↵
2. All icons and buttons found within this and subsequent chapters are created by Creative Commons under a CC-BY 4.0 Licence. ↵
3. TheOGRpository. (2012, Sept 5). *Creating OER and combining licenses* [YouTube video]. Retrieved from <https://www.youtube.com/watch?v=Hkz4q2yuQU8> ↵
4. Adapted from the *Which Creative Commons Licence is Right for Me?* fact sheet by Creative Commons Australia, used under a CC BY 2.5 Licence. ↵

# CHAPTER 3: FINDING OER

Locating Open Educational Resources (OER) can be a vital yet challenging task for educators seeking to enhance their teaching materials. This chapter focuses on the process of finding OER, offering strategies and tips to streamline the search. It acknowledges that while searching for OER can often be tedious and time-consuming, understanding effective methods and tools can significantly improve the efficiency and outcomes of this search. By exploring these techniques, educators can better navigate the OER landscape and find resources that best meet their needs.

## Finding Open Educational Resources

Steps for searching OER can be tedious and time-consuming; listed here are options before you start searching for OER.



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This covered strategies for finding Open Educational Resources (OER), addressing the often tedious and time-consuming nature of the search. By using effective techniques and tools, educators can streamline the process and efficiently locate valuable resources.

# OER Textbooks




Collections of textbooks designed with open licenses and for reuse, remix, and redistribute within courses for free. An open textbook is an openly-licensed textbook offered online by its author(s). The open license sets open textbooks apart from traditional textbooks by allowing users to read online, download, or print the book at no additional cost.

Click the 'info' button for more information.


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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=47#h5p-7>

No.	Open-access resources	Description
1.	openbook@UMS	Openbook@UMS is a free, Pressbooks-based platform offering accessible, Creative Commons open textbooks to support digital learning for all students.
2.	Open Textbook Library	The Open Textbook Library was started so that faculty could find open textbooks in one place. More technically, the Open Textbook Library is a comprehensive referatory that points to open textbooks by a variety of authors and publishers.
3.	OpenStax	OpenStax, a Rice University initiative, offers free, high-quality, peer-reviewed college textbooks in digital formats and affordable print versions. These textbooks cover various subjects and are customizable for instructors.
4.	BC Campus OpenEd	BCcampus OpenEd provides free, high-quality, openly licensed textbooks and resources to reduce education costs for students
5.	Saylor.org Bookshelf	Saylor Academy offers free, high-quality open textbooks and online courses across various subjects. These resources are openly licensed, allowing for use, revision, and sharing to support affordable education.
6.	College Open Textbooks	College Open Textbooks offers a wide range of free, openly licensed textbooks organized by subject. These resources are available for students and educators to use, modify, and share, promoting affordable and accessible education.

Click the 'info' button for more information.


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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=47#h5p-8>

No.	Open-access resources	Description
1.	Open Access Publishing in European Networks	OAPEN (Open Access Publishing in European Networks) is a digital platform offering open-access academic books and research publications. It promotes the global dissemination of scholarly work, making it freely accessible to researchers, students, and the public.
2.	Project Gutenberg	Project Gutenberg is a digital library providing free access to a large collection of public domain eBooks, including classic literature and historical texts.
3.	The Directory of OpenAccess Books	The Directory of Open Access Books (DOAB) is a directory offering free access to thousands of peer-reviewed open-access academic books across various disciplines.

Open textbooks, with their open licenses, provide a cost-effective and flexible alternative to traditional textbooks. By allowing free access, download, and printing, these resources support reuse and remixing, making quality educational content more accessible and adaptable.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=47#h5p-40>

# OER Repositories



These are repositories of open educational resources covering most of educational disciplines. Open Repositories are websites which house open books, textbooks, lectures, tutorials, quiz/test, case studies, assessment tools, images, syllabi, simulations, online courses and other resources of educational value.

Click the 'info' button for more information.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=49#h5p-9>

No.	OER Repositories	Description
1.	<b>OER UMS</b>	OER UMS is UMS's open educational resource repository. It collects, preserves, and freely shares teaching, learning & research materials under a Creative Commons license.
2.	<b>OER Commons</b>	OER Commons is a public digital library of open educational resources. explore, create. and collaborate with educators around the world to improve curriculum.
3.	<b>Lumen Learning</b>	Lumen learning is dedicated to facilitating broad, successful adoption of OER, contains courses in vast subject areas.
4.	<b>OpenStax CNX</b>	OpenStax is an educational nonprofit initiative of Rice University. We are the world's largest publisher of free, open education resources (OER).
5.	<b>MERLOT</b>	The MERLOT system provides access to curated online learning and supports materials and content creation tools, led by an international community of educators, learners and researchers.
6.	<b>OpenWashington</b>	This website is dedicated to providing easy pathways for faculty to learn, find, use and apply OER.
7.	<b>Orange Grove</b>	The Orange Groove is a online library of openly available resources for educators and students.
8.	<b>Opolisci</b>	A stable repository of political science OER materials, promote the curation and creation of political science OER materials, and facilitate the exploration of OER.
9.	<b>Europeana</b>	Europeana empowers the cultural heritage sector in its digital transformation. We develop expertise, tools and policies to embrace digital change and encourage partnerships that foster innovation.
10.	<b>Open Culture</b>	Open Culture scours the web for the best educational media. We find the free courses and audio books you need, the language lessons & educational videos you want, and plenty of enlightenment in between.
11.	<b>Teaching Commons</b>	The Teaching Commons brings together high-quality open educational resources from leading colleges and universities. Curated by librarians and their institutions, the Teaching Commons includes open access textbooks, course materials, lesson plans, multimedia, and more.
12.	<b>Resources for K-12</b>	<b>Khan Academy</b> Khan Academy is a free online learning platform that offers educational videos, exercises, and resources for students of all ages in subjects like math, science, and history. Its mission is to make high-quality education accessible to everyone, everywhere.
		<b>Curriki</b> Curriki is a free online platform that provides educators with access to a wide range of open-source teaching materials and tools. It helps teachers create, share, and find high-quality lesson plans and resources to enhance learning for students.
		<b>Gooru</b> Gooru is an online platform that helps teachers create personalized learning paths for students. It uses data to track progress and provide feedback, allowing students to learn at their own pace.

Open Repositories are invaluable for accessing a broad array of Open Educational Resources. They centralize

educational materials across disciplines, making it easier for educators and learners to find and utilize a wide range of resources for diverse teaching and learning needs.

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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=49#h5p-41>

# OER Evaluation

Evaluating Open Educational Resources (OER) is crucial for ensuring their quality and effectiveness in educational settings. This chapter focuses on the use of rubrics as a tool for OER evaluation. Rubrics provide a structured framework for assessing the quality of OER, helping educators and institutions determine which resources best meet their needs and standards. By understanding and applying these evaluation criteria, users can make informed decisions about the adoption and integration of OER into their teaching practices.

## Rubrics for OER Evaluation

Several Open Educational Resources (OER) evaluation rubrics and tools are readily available online. Below are some recommended options to consider utilizing.

Checklist for evaluating OER	Developed by Austin Community College Instructional Development Department
OER Evaluation Criteria	Developed by Affordable Learning Georgia
OER Rubric	Developed by Achieve.org
Faculty Guide for Evaluating OER	Developed by BCOER Librarians
OER Evaluation Rubric	Developed by Achieve.org

Effective evaluation of Open Educational Resources (OER) is essential for selecting high-quality materials that enhance teaching and learning. By utilizing rubrics, educators can systematically assess OER and ensure that the resources they choose meet educational standards and needs. This approach facilitates informed decision-making and supports the successful integration of OER into educational practices.

# Open Courseware Collections

This chapter presents a curated list of prominent Open Courseware collections, covering a range of subjects and educational levels. By exploring these listed resources, users can access diverse instructional content and enhance their teaching and learning experiences with high-quality, openly available materials.

MIT OCW	<b>MIT OpenCourseWare</b> is a free and open collection of material from thousands of MIT courses, covering the entire MIT curriculum.
Open Michigan	<b>Open Michigan</b> enables the University of Michigan community to make the products of its research, teaching, and creative work available to the world beyond campus.
The Open University	<b>OpenLearn</b> is a free learning platform, delivered by The Open University as part of its Royal Charter commitment to support the wellbeing of the community.
Oxford University Podcasts	<b>Oxford University</b> provides many podcasts content under a Creative Commons licence, free for reuse, remixing and redistribution in education worldwide.
Yale OCW	<b>Open Yale Courses</b> provides free and open access to a selection of introductory courses taught by distinguished teachers and scholars at Yale University.
Carnegie Mellon University's Open Learning Initiative	<b>Carnegie Mellon University's Open Learning Initiative (OLI)</b> is an educational project that offers online courses and learning materials. Launched in 2002, OLI aims to improve learning and teaching by leveraging advanced educational technology, research-based instructional design, and data-driven continuous improvement.
UC Berkeley Webcasts	<b>UC Berkeley Webcasts</b> offer free online access to recorded lectures and events from various courses at UC Berkeley.
UMASS Boston OpenCourseWare	<b>UMass Boston OCW</b> is a free educational resource available to faculty, students, and self-learners globally. Whether you are a high school student preparing for college, a faculty member seeking course development ideas, or a community member conducting research, the UMass Boston OCW collection offers valuable resources to meet your needs.
Washington State Colleges Open Course Library	<b>The Washington State Colleges Open Course Library</b> is a collection of openly licensed, high-quality educational materials designed to support various college courses. Developed to reduce textbook costs, these resources are freely available for use and adaptation by students and educators.
Utah State University Open CourseWare	<b>Utah State University's USU OpenCourseWare</b> initiative provides free and open access to a diverse array of educational materials, such as lecture notes, assignments, and exams. This platform is an excellent resource for learners seeking high-quality educational content without the need for formal enrollment.

By utilizing these collections, educators can access a variety of high-quality materials to support their courses, while learners benefit from additional resources to deepen their understanding. Open Courseware continues to be a valuable asset in making education more accessible and adaptable to diverse needs.

# CHAPTER 4: UNESCO RECOMMENDATION ON OER

The 2019 UNESCO Recommendation on Open Educational Resources (OER) represents a significant milestone in the global effort to promote and enhance the use of OER in education. This chapter explores the key aspects of the UNESCO Recommendation, outlining its objectives, principles, and recommendations for advancing the adoption and integration of OER. By examining this influential framework, educators and policymakers can gain valuable insights into how to support and leverage OER to improve educational practices and ensure equitable access to quality learning resources worldwide.

Below is The 2019 UNESCO Recommendation on open educational resources (OER):



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=56#h5p-25>

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(“The 2019 UNESCO Recommendation on open educational resources (OER)” by United Nations Educational, Scientific and Cultural Organization is licensed under CC-BY-SA)



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=56#h5p-31>

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The 2019 UNESCO Recommendation on Open Educational Resources (OER) offers a comprehensive framework for advancing the use and integration of OER globally. By adhering to its principles and recommendations, educators and policymakers can foster an environment that supports the effective use of OER, enhances educational quality, and promotes equitable access to learning resources. Embracing the UNESCO guidelines will contribute to a more inclusive and innovative educational landscape.



# CHAPTER 5: SHOWCASE OF IOER



# iOER Policy

Inclusive Open Educational Resources (OER) Policy is crucial for ensuring that educational materials are accessible, equitable, and beneficial to all learners. This chapter delves into the principles and practices of developing and implementing inclusive OER policies. It explores how such policies can address diverse educational needs, promote accessibility for learners with varying abilities, and foster an inclusive learning environment. By understanding and applying inclusive OER policies, educators and institutions can enhance the reach and impact of their educational resources, ensuring that they meet the needs of all students.

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## EXECUTIVE SUMMARY



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## NATIONAL INCLUSIVE OPEN EDUCATIONAL RESOURCES POLICY



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## DEFINITION

The followings are the definitions for terminologies used in this policy:  
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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=61#h5p-13>

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# POLICY DECLARATION

The Malaysian governmental bodies, educational providers and institutions from preschool to post-secondary education levels in both public and private sectors and agencies, hereafter referred to as the “institution”, will promote and implement inclusive Open Educational Resources (iOER) that permits no-cost access, re-use, re-purpose, adaptation and redistribution by others within an Open Licensing framework.

The long-term vision of this National Policy on inclusive Open Educational Resources (iOER) is to ensure the adoption of iOER by the institutions to provide quality education and training (learning and development) access to all learners.

The Policy envisions that iOER will be used effectively in education to enable all learners to learn according to their individual learning preferences as well as learning styles and to promote the long-term inclusion into wider society of learners with disabilities, particularly through enhancing their social inclusion and employment opportunities.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=61#h5p-14>

The National Inclusive Open Educational Resources Policy can be downloaded at [jpt.mohe.gov.my](http://jpt.mohe.gov.my):  
Link: National Inclusive Open Educational Resources Policy

# APPENDIX

## Recommendation on Open Educational Resources (OER)

25 November 2019



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=61#h5p-15>

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# ACKNOWLEDGMENT



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=61#h5p-16>

## National Inclusive Open Educational Resources Policy Community of Practitioners

The **National Inclusive Open Educational Resources (OER) Policy Community of Practitioners** is a collaborative network dedicated to advancing the use and development of inclusive OER practices. This community brings together educators committed to creating and implementing OER policies that ensure equitable access to high-quality educational resources. By fostering a culture of collaboration and shared expertise, the community aims to promote inclusivity in educational content, catering to diverse learning needs and supporting lifelong learning opportunities for all.

Click on the image to visit the iOERCOP website.



The **National Inclusive OER Policy Community of Practitioners** is essential for advancing inclusive OER practices. By working together, we ensure that education remains accessible and equitable for all.  
([ioercop.ums.edu.my](http://ioercop.ums.edu.my))

# Implementation of iOER in Malaysia

On January 18, 2024, Universiti Malaysia Sabah (UMS) hosted a landmark event showcasing innovative Open Educational Resources (iOER). The workshop, conducted by Commonwealth of Learning consultant Assoc. Prof. Dr. Dianne Chambers, aimed to encourage institutions to publish iOER content into educational repositories, fostering greater accessibility and sharing of knowledge. The event featured several esteemed speakers, including Bill Wilmot, a UDL implementation specialist, who provided insights into Universal Design for Learning, and Dr. Cable Green, Director of Open Education at Creative Commons, who discussed licensing for educational resources. Cedric Yang, representing Google, highlighted the role of Google Cloud Education in supporting these initiatives. The workshop was officially inaugurated by Assoc. Prof. Dr. Wan Zuhainis Saad, Director, Academic Excellence Division, Department of Higher Education (2022), underscoring the university's commitment to advancing educational excellence through open resources and collaborative efforts.

## Malaysian Universities Education Repositories

Click the 'info' button for more information and a link to iOERCOP.



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<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=66#h5p-17>

# iOER Demonstration

This section displays the iOER projects that were designed and developed by Malaysian Public Universities. Below are six selected iOER demonstrations.

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**Presenter 1:** Dr. Munira binti Abdul Razak (UMPSA)

**Topic:** From i.O.E.R to H.A.T.I: the UMPSA Journey towards global inclusive technology and ecosystem.



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**Presenter 2:** Dr. Siti Hajar Binti Adam (UPNM)

**Topic:** Embracing iOER to explore the basic of autonomic nervous system.



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**Presenter 3:** Ts. Erny Arniza Binti Ahmad (UiTM)

**Topic:** Engineering iOER for quality education.



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**Presenter 4:** Dr. Siti Khadijah Adam (UPM)

**Topic:** Developing iOER for Pharmacology Education: My Personal Journey



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**Presenter 5:** Assoc. Prof. Dr. Julia Lee Ai Cheng (UNIMAS)

**Topic:** Unpacking the black box of iOER on diversity in Higher Education.



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**Presenter 6:** Dr. Intan Soliha Ibrahim & Mrs. Salmie Jemon (UMS)

**Topic:** Radio in the iOER World



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# CHAPTER 6: GENERATIVE AI IN OER



# What is Artificial Intelligence?

“Artificial intelligence is the design, implementation, and use of programs, machines, and systems that exhibit human intelligence, with its most important activities being knowledge representation, reasoning, and learning. Artificial intelligence encompasses a number of important subareas, including voice recognition, image identification, natural language processing, expert systems, neural networks, planning, robotics, and intelligent agents.”

Whitson, G. M. (2024). Artificial intelligence. *Salem Press Encyclopedia of Science*.

The following video explains Generative AI in 2 minutes.



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“Generative AI explained in 2 minutes” by KI-Campus is licensed under CC BY-SA 4.0)

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The following video explains Generative AI for open Education



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“Generative AI for Open Education” by World Education is licensed under CC-BY)

- Watch this video to learn how educators who assign writing are teaching about artificial intelligence (AI) text generators.

Link: [Writing and Artificial Intelligence: An Open Educational Resources \(OER\) Guide](#)

# Guides on OER and AI

Guides on OER and AI sourced from various educational and institutional publications, including policy guidance, insights, and recommendations on the integration of Artificial Intelligence in teaching and learning.

Click the 'info' button for more information.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=74#h5p-18>

# Articles about OER and AI

Guides on OER and AI sourced from various educational and institutional publications, including policy guidance, insights, and recommendations on the integration of Artificial Intelligence in teaching and learning.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

<https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=76#h5p-19>



# CHAPTER 7: UNIVERSAL DESIGN FOR LEARNING

The UDL Guidelines are a tool used in the implementation of Universal Design for Learning, a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. The UDL Guidelines can be used by educators, curriculum developers, researchers, parents, and anyone else who wants to implement the UDL framework in a learning environment. **These guidelines offer a set of concrete suggestions that can be applied to any discipline or domain to ensure that all learners can access and participate in meaningful, challenging learning opportunities.**

Please refer to the video provided for a comprehensive overview of this topic.



*One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=78#oembed-1>*

Universal Design for Learning (Part 2): UDL Guidelines © 2017 by Center for Excellence in Teaching and Learning at OU is licensed under CC BY 4.0



*An interactive H5P element has been excluded from this version of the text. You can view it online here: <https://openbook.ums.edu.my/pushstartoerandioerforeducators/?p=78#h5p-32>*

References: Universal Design for Learning: One Small Step



# Engagement

**Multiple means of engagement** refers to different opportunities for student involvement (e.g., interactive activities, group discussions, online discussion boards). This principle reflects the idea that students have different motivations to engage in learning. For instance, some students are highly motivated by spontaneity and innovation while others may be uncomfortable in such learning environments. Some students may seek active social learning forums while others will retreat from such environments. Students who are more engaged in learning will be enthusiastic about applying their knowledge and will have a desire to learn more on their own. This principle also refers to offering varying levels of challenge, fostering community and collaboration, and supporting students in self-regulating their learning. In a learning environment that applies this principle, learners are challenged, excited, and motivated about what they are learning.

Click the 'info' button for more information.



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# Representation

**Multiple means of representation** is about providing learners various ways to access and engage with course materials and information. In its simplest form, this could mean offering textbooks in audio or multimedia formats. This principle also refers to how students comprehend information in different forms, such as decoding syntax, vocabulary, notation, symbols, and disciplinary language. The goal is to support students in using multiple representations and developing fluency in traversing across them. Offering flexibility in presenting information also acknowledges differences in how learners comprehend and perceive information. For example, students with visual impairment may find print materials inaccessible, and students with diverse language, cultural backgrounds, and access needs may encounter barriers to information when educators assume common backgrounds. In a learning environment that applies this principle, material and content are presented in a variety of ways at the outset.

The principle also includes pedagogical approaches to a topic or concept. An educator could decide to give a concept overview (lecture) followed by an example and an application of the concept through an in-class exercise. Other examples of approaches include statistics, case studies, and expert opinion. If one approach is ineffective, a different approach may work better.

Click the 'info' button for more information.



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# Action and Expression

**Multiple means of action and expression** encourages students to demonstrate their learning through various forms (e.g., exams, multimedia, concept maps, papers, projects). This principle highlights executive functioning, where students apply what they learn strategically. That is, it involves finding, creating, using, and organizing information. This process can include graduated levels of support, and using tools and technology. Students may find that they are able to express themselves more proficiently in one medium than in another. It may be possible to incorporate graded assignments into a course that allow students to select alternative formats. Other opportunities for multiple means of action and expression include notetaking, in-class assignments, and feedback from different sources. In a learning environment that applies this principle, learners can act upon and express their comprehension in multiple ways.

Click the 'info' button for more information.



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# CHAPTER 8: DUBAI DECLARATION ON OPEN EDUCATIONAL RESOURCES (OER)

The Dubai Declaration on Open Educational Resources (OER) is the result of a comprehensive and collaborative process to advance the implementation of the UNESCO 2019 Recommendation on OER. This initiative was built upon the contributions of Dr. Tel Amiel, UNESCO Chair in Open Education and Technologies for the Common Good, Brazil, as well as a research paper prepared by Dr. Javiera Atenas, Senior Lecturer in Learning and Teaching at the University of Suffolk, United Kingdom for UNESCO. It was further supported by the UN Sustainable Development Solutions Network (SDSN).



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