UNIVERSITY OF MARYLAND GLOBAL CAMPUS
COURSE DEVELOPMENT

Guidelines for Designing Online Courses

Are you involved in designing online courses for your educational institution? This resource includes best practices in applying learning design principles, searching for learning resources, identifying digital rights requirements, and ensuring accessibility compliance in the classroom.

Developing Outcomes

Source: Wiggins & McTighe (1998)

Developing measurable learning outcomes is the first step of effective learning design. Through the process of **backward design**, a design team will first determine outcomes and then use the outcomes to determine everything else in a course: the assessments to generate, the activities to engage in, and the resources to provide. Finally, the learning outcomes are the basis to build the rubrics to accurately evaluate learning.

Here are some additional details to highlight the essential components of backward design.

Identify Learning Outcomes	Clarify Evidence of Learning	Plan Learning Experiences	Curate Learning Resources
Goals/Competencies	Assessments/ Rubrics	Authentic/Active/ Collaborative Learning	Instructional Content/Multimedia
What do learners need to know and demonstrate in career-related contexts?	How will students demonstrate their learning, and how will it be measured?	What activities will engage students to develop the required skills to achieve the learning outcome?	What course materials will help students to develop the knowledge needed to apply their learning?

Competency vs. Content

Many of us come from an educational background where the retention of information was the most frequently assessed skill, if not the most valued. Memorizing course content was key; knowing the material was paramount. However, current assessment models lean more heavily on a wider range of skills, especially competencies that require critical thinking and problem-solving skills.

Ask Yourself

What skills do you want learners to be able to perform beyond memorization? At what point in the course would you expect the learner to be able to perform that skill?

You may think of this as a distinction between competency-oriented outcomes and content-based outcomes.

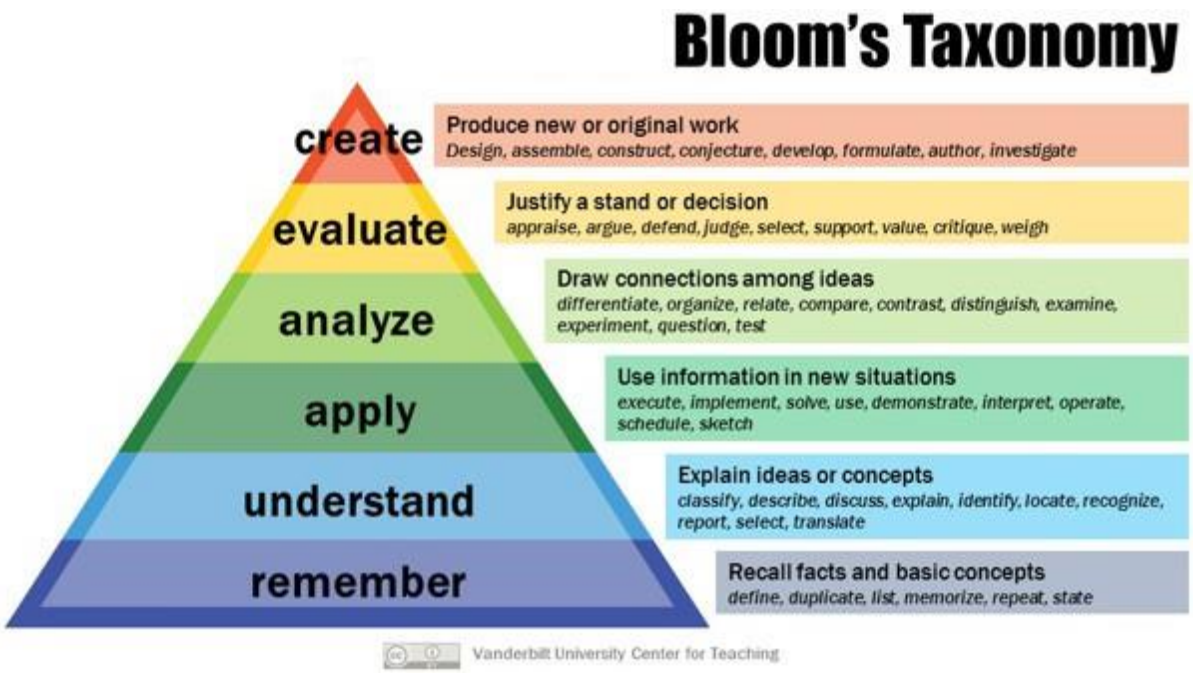
Competency-oriented outcomes	Content-based outcomes
What skills learners need	What knowledge learners need

Outcomes should focus on competencies rather than content. Developing competency-oriented outcomes also focuses on the learner, providing opportunities to actively demonstrate and apply the learning.

Bloom's Taxonomy

Bloom's taxonomy is a useful standard when crafting learning outcomes. Bloom's taxonomy hierarchically maps verbs according to the complexity of skill required by the action described.

For example, some verbs such as "define" or "identify" rank as lower-order competencies, whereas verbs like "analyze" or "interpret" are considered higher-order competencies.



In practical terms, this means that outcomes should not become a list of course concepts. Ideally, we want outcomes that increase in complexity as the learner goes from learning about a concept to recognizing it at work in an example, to applying it in an original way, or even to creating something new using the principles of the concept.

This progression of learning, moving from lower-order competencies to higher-order competencies, can be seen in this example:

Define concept X
Explain using concept X
Analyze using concept X
Evaluate using concept X

Consider the following weekly outcomes. Note how the competencies increase in complexity.

Sample Week 1 Outcomes from "Introduction to the Graphic Novel"

Upon completion of this module, students will be able to:

- Define concepts related to graphic novels.
- Explain the relationship between text and image in a panel of graphic literature.
- Analyze the degree of realism, abstraction, or simplification in visual representation.
- Evaluate the panel-to-panel transitions in graphic literature.

The outcomes start from low-level "define" (be able to know the concepts; the concepts were not named specifically) to higher-level "explain" (separate parts of a comic to label their relationship), "analyze" (to assess a visual art style along a hierarchical system), and "evaluate" (argue meaning of an artistic choice).

Every week could use this same pattern applied to that week's topic, or it can spread out the complexity over several weeks. You could ask a learner to define a concept one week, explain or analyze it the next week, and evaluate it in the third week. This would support the concept of scaffolding and the student's progression toward meeting learning outcomes at the analysis, evaluation, and creation levels.

Tips for Developing Better Outcomes

When developing learning outcomes, remember to make sure they are specific, measurable, and achievable, as well as to use active verbs that clearly indicate expectations for student performance. Here are additional tips to consider.

Tip	Description	Example
Use Bloom's taxonomy to clearly align the required performance to the appropriate cognitive level.	Sometimes courses will use a low-level verb like "identify" when the assignment is asking the learner to perform a task at a higher level such as "analyze" or "choose" or "evaluate."	An outcome such as "Identify course concepts" would correctly use the term as a lower-order outcome. However, an outcome such as "Identify the most effective service provider" implies skills beyond simple identification: it implies analysis and evaluation.
Keep outcomes to only one verb from Bloom's taxonomy.	Be aware of overused Bloom verbs like "demonstrate" or "apply," which often precede a second verb that would make a better verb.	"Demonstrate the ability to revise written reports" could be written as "Revise written reports." Sometimes, a second verb will sneak in under the guise of a noun, such as "analysis."
Do not use verbs that cannot be observed, measured, or clearly	The meaning of each action verb used in learning outcomes must be clear to students.	Some examples of verbs to avoid: understand, comprehend, know, master.

evaluated.		
Develop outcomes that cover skills at different levels (higher-order and lower-order) rather than just repeat the same verb applied to different content.	If the same verb is applied repeatedly to different concepts, then it might be possible to summarize multiple outcomes within a single outcome.	You can use a term that covers multiple concepts or simply includes multiple concepts in a list. If you identify three outcomes that all start with "identify," then these can be collapsed into "Identify terms and concepts relevant to [the field in question]" or "Identify [X], [Y], and [Z]."
Identify exceptions for levels of cognitive skills for weekly content.	Some courses might only assess low-level memorization skills in each week.	One week may only have a quiz or test with no final deliverable. In this case, listing out three to five concepts would be appropriate. These concepts could then be part of higher-level applications or analysis in later weeks.

Evaluating Learning Outcomes

Take a moment to review some examples of learning outcomes and consider how you would improve them. Remember to use Bloom's action verbs and to increase the level of complexity, whether your course is organized by week, project, or other layout.

Key Points

- Backward design begins with the end goals by identifying what the student will learn and do, rather than focusing on the content.
- Quality course design ensures alignment between the learning outcomes, assessments, activities, and resources.
- Bloom's taxonomy is an essential tool when selecting action verbs for different cognitive levels of performance.
- Avoid using more than one verb per learning outcomes or repeating the same verb for different concepts.
- Do not use verbs that cannot be observed, measured, or clearly evaluated such as understand, know, or comprehend.
- Learning outcomes should increase in complexity to support the progression of learning from lower-order competencies to higher-order competencies.

Quiz: Multiple Choice

To assess your learning, complete the following quiz questions.

Question 1

Which best describes the rationale for applying the backward design approach when designing and developing online courses?

1. The backward design approach focuses on student learning and clearly identifies what the student should know after completing a course.
2. The backward design approach ensures the learning outcomes or competencies are the focus of learning, followed by the intentional alignment of all assessments, activities, and course materials to support the achievement of the competencies.
3. The backward design approach is best applied to course design and serves as a blueprint for all the course content.

Answer: Option 2.

Question 2

In Bloom's taxonomy, what levels are considered higher-order cognitive skills?

1. understand, apply, and evaluate
2. evaluate, create, and apply
3. analyze, evaluate, and create

Answer: Option 3.

Question 3

Which learning outcome measures the highest level of skill in Bloom's taxonomy?

1. Identify the issue, question, or problem for a research paper.
2. Develop a training needs analysis report to include performance gaps and an action plan to prioritize recommendations.
3. Describe the three main principles of universal design for learning.
4. Apply malware analysis techniques to reduce security risks and avoid malicious software attacks.

Answer: Option 2.

Links to Resources

Bloom's Taxonomy

References

Quality Matters (QM) Program. (n.d.). Specific review standards from the QM higher education rubric, sixth edition. https://www.qualitymatters.org/sites/default/files/PDFs/StandardsfromtheQMHigherEducationRubric.pdf

Wiggins, G., & McTighe, J. (1998). What is backward design? *Understanding by design*, 7-19.

Outcome Alignment

Now that you have identified measurable learning outcomes, you can then begin working on developing how to assess student learning and identifying what resources and activities will prepare students for these assessments.

Key Elements of Outcome Alignment

- Identify the assignments that will authentically measure student performance.
- Select the activities and resources that will reinforce the learning outcomes.
- Confirm how they are aligned to your learning outcomes.

When reviewing your course, there are two basic guidelines for outcome alignment:

1. All activities and resources in a unit of instruction must align with at least one of the outcomes.
2. All outcomes must align with at least one resource or activity and be measured by at least one assessment.

These guidelines are based on instructional best practices to ensure all learning outcomes are supported with relevant materials and activities and are also assessed in the course.

Take Note

When learning outcomes are not aligned, both students and faculty are negatively affected.

- Students spend time on content or activities that are not relevant to the outcomes.
- Faculty members cannot accurately gauge the effectiveness of their teaching.
- The course will contain inconsistencies between what students are expected to do and what is actually assessed.

Alignment Process for Resources

When you are working with an existing course, you will be identifying the current resources within the course and selecting which ones are needed in order to successfully complete the course goals and learning outcomes. Let's review some questions to help guide you on this process.

Question 1: Do we need this resource?

For each resource or piece of content (text/video/interactive component):

Ask Yourself

- Which weekly outcome does this resource help to fulfill?
- If it does not fulfill a weekly outcome for the week it is assigned, does it prepare the learner to fulfill a later outcome?
- Is the resource redundant because another resource in the course conveys the same information?

If the content does not align with any of the weekly outcomes or is redundant, then it is best to remove it to support optimal learning.

It is also important to avoid having content aligned to weekly outcomes from prior weeks. If the learner has already demonstrated a competency in Week 1, then there should be no reason for the learner to have to read more content related to that competency in Week 5.

That being said, perhaps the content will be assessed on a higher level in a later week, in which case a revised version of the competency might reappear on a higher level later. Or perhaps the outcome in Week 1 itself needs to be moved to Week 5.

Question 2: Do we need all of this resource?

Furthermore, for each resource, you also want to:

Ask Yourself

- Which parts of the resource are necessary for fulfilling the assigned tasks and should be retained?
- Which parts of a resource do not sufficiently support fulfilling assigned tasks and can be removed?

This is especially true for textbooks and long readings. If there are sections of chapters that you do not think are necessary, identify them for removal. It is essential to provide only relevant resources

not only for student learning but also to streamline course development processes. Keep in mind: Just because every resource aligns with an outcome, that does not mean that we have necessarily covered every outcome. This leads us to…

Question 3: Do all outcomes have resources?

Finally, for each weekly outcome:

Ask Yourself

- Which resources help to fulfill this outcome?
- Are there any resources that are no longer satisfactory?
- Do the resources provide the student with the concepts needed to understand and apply to the outcomes?

Keeping Track of Resources

To assist in the alignment process, you may find it helpful to insert tables in your working document. The table will help you quickly survey resources and determine:

- if any materials are not in alignment
- if every weekly or project outcome is accounted for among the resources.

Assignment Type Read, Discuss, Assign	**Resource Title / Assignment Link**	**Outcome Alignment**	**Status**
Read	Principles of Macroeconomics, Chapter 8: Unemployment	Week 2: Learning Outcomes 3 and 4 • Explain frictional, structural, and cyclical unemployment. • Identify the factors that affect the unemployment rate.	Existing resource: include in course

Key Points

- For effective teaching and learning, all course components must be aligned.
  - Identify authentic assignments that will measure student performance.
  - Select activities and resources that will reinforce the learning outcomes.
  - Confirm how the course elements are aligned to the learning outcomes.
- Misalignment negatively affects student learning and faculty teaching.
- Evaluating each resource as to how it aligns to the competencies helps to ensure relevancy and to keep students on track to prepare for the assignments.
- All learning outcomes must align with at least one activity or resource and be measured by at least one assessment.

Quiz: Multiple Choice

To assess your learning, complete the following quiz questions.

Question 1

What is a recommended approach when a resource is relevant to the learning outcomes, but you determine it is too long for students to complete and potentially retain?

1. Remove the resource and contact the research team to search for a new one.
2. Select the sections that you identify as essential to include and work with the learning designers to process the request.
3. Retain the resource and explain to students' which sections they should focus on but also encourage them to complete all sections.

Answer: Option 2.

Question 2

To support students' understanding of the importance of learning outcomes, which approach best aligns with the course organizational guidelines?

1. Include guidance to students on how the learning outcomes are aligned to the assignments, activities and resources, as well as your teaching approach.
2. Provide guidance in key locations including the course introduction, weekly overviews, and descriptions of each activity and resource.
3. Explain how the outcomes, assignments, and content are connected in the course narrative and discussions.
4. All of the above.

Answer: Option 4.

Question 3

When learning outcomes are misaligned, how might this affect students?

1. Students may be spending time on learning resources that are not relevant to the assignments.
2. Students may lose confidence in their ability to manage and demonstrate their learning effectively.
3. Students may focus more on how to obtain a high grade on assignments rather than focusing on what they need to learn and confidently apply in new situations.
4. All of the above.

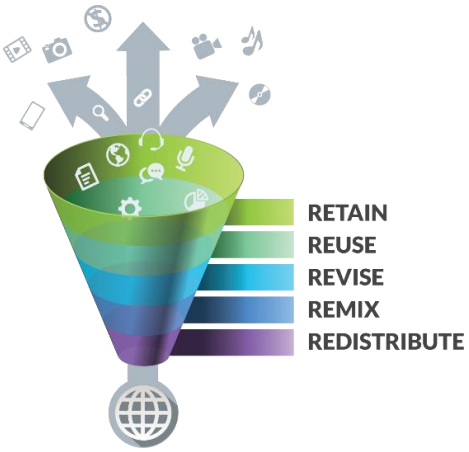
Answer: Option 4.

References

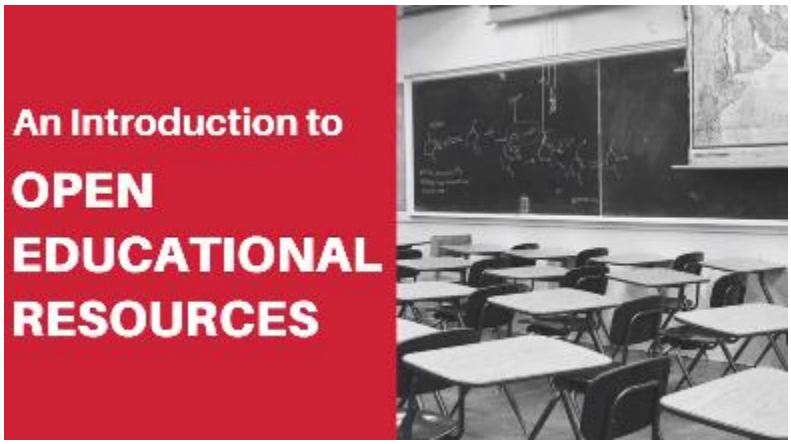
Biggs, J. (2014). Constructive alignment in university teaching. *HERDSA Review of higher education*, *1*(5), 5-22

What Are Open Educational Resources (OERs)?

Open educational resources (OERs) are free digitized materials offered to educators, students, and self-learners under a Creative Commons (or other "open") license that allows users to copy, use, adapt, and redistribute for educational and research purposes. Works that are in the public domain also fall into the category of OERs and are free to use by the public.



The following video provides an overview of what OERs are and how they are different from textbooks and other closed resources. The video highlights how educators can use OERs in their classrooms and describes the impacts on students. Take a moment to view and listen.



The 5Rs of OERs

To encourage educators to embrace the openness of OERs, a framework known as the 5Rs that was popularized by David Wiley of Lumen Learning defines the rights of open content and provides guidance on how to use these resources. These rights are maintained by open licensing organizations such as Creative Commons, and they enable creators to publicly claim how their work can be used.

Retain:	Make and own copies of the resource indefinitely
Reuse:	Use the resource in a variety of ways
Revise:	Adapt, modify and improve the resource
Remix:	Combine the resource with other resources to create a new work
Redistribute:	Share the resource with others

Brief History of OERs

When OERs were introduced to the education world in 2002, skeptics questioned whether an open resource model would work. Faculty, college administrators, and others were concerned whether OERs could match the quality and authority of textbooks and supplemental materials published by the established textbook providers.

In the following years, as more organizations and institutions started open publishing programs, and Creative Commons began its licensing platform to certify and kick-start the open licensed model, some educators still questioned whether OERs could live up to their promise as free or low-cost replacements for traditional textbooks.

Today, the evidence is mounting that OERs can have a positive impact on the educational system, from K-12 through postgraduate programs. These impacts are both financial and performative.

Why Use OERs?

Initially, many educators, academic leaders, students, policy makers, and others advocated for the use of OERs in higher education because of the cost savings for students and families that open resources offered. The expense of traditional textbooks and supplementary materials continued to rise throughout the 1990s and 2000s, costing students on average $1,240 per school year, according to The College Board (2019).

Research showed that many students took fewer classes in order to afford their textbooks or did not purchase some textbooks at all, hoping to keep up by borrowing other students' materials or purchasing used editions. In a survey of 21,000 students in 2018, 64.2 percent of responders indicated that they did not purchase a required textbook for a class due to price, and another 42.8 percent said that they took fewer classes due to the high cost of textbooks and other learning materials (Florida Virtual Campus, 2018).

Many faculty and college administrators began to view the textbook dilemma as an accessibility issue, in which low-income and underserved students were increasingly at a disadvantage with their better-off peers, who could afford the textbooks more easily. OERs were seen as an effective way to ensure that all students, regardless of economic status, had the resources they needed.

Benefits of OERs Beyond Cost Savings

As OERs became increasingly available during the 2000s and have continued to expand worldwide, higher education institutions began to adopt OERs into their courses--even offering "zero textbook" classes. With the growth in OERs, educators realized that the benefits went beyond saving money for students.

Educators began adapting OERs for their purposes, creating original course content that involved and engaged students in ways that textbook reading and practice did not. In the process, teachers began to assess the materials and learning outcomes of their courses in a more deliberate manner because they now had the freedom to adapt, modify, and correlate those resources in a more targeted way.

The following reflect some of the reasons for transitioning to OERs:

- To encourage faculty members to use and develop course materials that can be tailored and thus better aligned with the learning outcomes of their classes
- To guarantee that course materials are as relevant and up-to-date as possible, especially for programs where changes in technology, methods, and tools are more rapid than what traditional textbooks can address
- To seek out and use materials that engage students in a multidimensional way
- To embed learning resources in courses that offer diverse perspectives
- To provide course materials and instruction that each student requires to achieve the competencies to succeed
- To ensure that students, regardless of income status, have access to the course materials necessary for success
- To make the cost of education more affordable

Key Points

- Open educational resources (OERs) are free digitized materials offered to educators, students, and self-learners through an open license that allows users to copy, use, adapt, and redistribute for educational and research purposes.
- Examples of OERs include textbooks, eBooks, articles, modules, lessons, labs, tests, videos, software, and other tools, materials, or techniques to support learning.
- The 5Rs of OERs enables educators to retain, reuse, revise, remix, and redistribute open resources.
- Research shows that OERs are as effective and of the same quality as textbooks in terms of student engagement and performance.
- Faculty members have found quality OERs more effective in supporting diverse learner needs and promoting an inclusive learning environment.
- OERs have been found to reduce the barriers of access and affordability for learners.
- OERs enable faculty and educational institutions to customize course content and improve alignment to learning outcomes.

Review and Reflect

To reinforce your learning, take a moment to answer the following questions.

Question 1

What are the key characteristics of OERs?

Answer: OERs are educational materials that are openly licensed to enable users to retain, reuse, revise, remix, and redistribute.

Question 2

What is one of the ways you can identify whether educational materials are OERs?

Answer: OERs include an open license, such as a Creative Commons license, that permits their use with no or limited restrictions.

References

College Board. (2019). Average estimated undergraduate budgets, 2018-19. https://trends.collegeboard.org/college-pricing/figures-tables/average-estimated-undergraduate- budgets-2018-19

Florida Virtual Campus, Office of Distance Learning & Student Services. (2018, December 20). *2018 student textbook and course materials survey*. https://dlss.flvc.org/documents/210036/1314923/2018+Student+Textbook+and+Course+Materials+Survey+-+Executive

+Summary.pdf/3c0970b0-ea4b-9407-7119-0477f7290a8b

Griffiths, R., Gardner, S., Lundh, P., Shear, L., Ball, A., Mislevy, J., Wang, S., … Staisloff, R. (2018). *Participant experiences and financial impacts: Findings from year 2 of Achieving the Dream's OER degree initiative*. Menlo Park, CA: SRI International.

OER Research

How to Search for OERs

There are recommended sources and practical steps to follow when searching for OERs. The resources must be "openly licensed" and free of any copyright restrictions in order to include in your courses.

Using Google Advanced Search

Your search strategies can vary depending on the subject matter and the specificity of the desired material. As a general rule, results may decrease as your searches become more specialized. One of the ways to refine your searches for openly licensed resources is to use Google Advanced Search.

Recommended OER Repositories

Since Google may not find everything you need, here are some recommended sites to explore different types of OERs.

To search and retrieve content from the leading OER repositories, you can use keyword searching; however, it is recommended to use the site's browse feature. The resources in these repositories may not have tagged the assets by your specific keyword search, but the collection will most likely be organized by subject.

Open-licensed eBooks	Saylor http://www.saylor.org/ Lumen Learning: https://lumenlearning.com/ OpenStax https://openstaxcollege.org/ Open Textbook Library: http://open.umn.edu/opentextbooks/ BC Open Textbooks: https://opentextbc.ca/
Open-licensed lectures	Khan Academy https://www.khanacademy.org/ MIT Open Courseware http://ocw.mit.edu/index.htm Open Yale courses http://oyc.yale.edu/ Open.Michigan https://open.umich.edu/find/find-open-educational-resources
Open-licensed images	Pixabay https://pixabay.com/ Pexels.com https://www.pexels.com/ Flickr.com https://www.flickr.com/

Public domain (federal)	Locate possible leads from this list: https://www.usa.gov/federal-agencies/h or usa.gov search

Key Points

- When searching for OERs, the recommended strategies include Google Advanced Search and selected OER repositories.

Pre-Vetting OERs

Best Practices for Pre-Vetting OERs

After completing your initial research, you may have a number of OERs that are relevant to your course and align with the learning outcomes. The next step is to pre-vet these resources to make sure that they meet your institution's requirements with respect to open licensing, ADA compliance, and OER quality objectives.

This section is designed to provide you with practical steps to follow when executing this pre-vetting process. While there are additional accessibility compliance requirements, the focus here is on reviewing your OERs to ensure the following:

- The OERs are openly licensed (i.e., are published under a Creative Commons license) or are in the public domain.
- All of the third-party content in the resource is openly licensed.

Let's look at these factors one at a time.

Are Your OERs Available Under a Creative Commons (CC) License?

There are six types of CC licenses that are important to know when identifying usable OERs, and all the licenses require attribution. Most OERs clearly display the CC license symbol or license text (with a link to the specific license deed) on the first page of the resource. However, it is not unusual to have to search for the license in the document or web page if the license is not prominently displayed.

Before reviewing some examples of how to find the CC license within a resource, take a moment to review the six types of CC licenses. The order of the licenses starts with the most open, progressing to less open and the last two with ND (no derivatives) considered as not open.

Types of CC licenses

CC BY (Attribution)	 A license to use the content without any restrictions. As with all CC licenses, attribution is required.
CC BY-SA (Attribution-ShareAlike)	 A license that requires that all subsequent versions of the original work be published under the same CC BY-SA license. Attribution is also required.
CC BY-NC (Attribution-NonCommercial)	 A license to use the work for noncommercial purposes only. Attribution is also required.
CC BY-NC-SA (Attribution-NonCommercial-ShareAlike)	 A license to use the work for noncommercial purposes and that all subsequent versions of the original work must be published under the same CC BY-NC-SA license. Attribution is also required.
CC BY-ND (Attribution-No Derivatives)	 A "no derivatives" license. The "no derivatives" restriction means that the original work must be published "as is," in its entirety, with no modifications. Attribution is also required. UMGC does not allow the use of content with this license (see reference below).
CC BY-NC-ND (Attribution-NonCommercial-ShareAlike-No Derivatives)	 A license to use the work for noncommercial purposes and with no modifications. Attribution is also required. This is the most restrictive of the six CC license types. Again, UMGC does not allow the use of content with this license (see reference below).

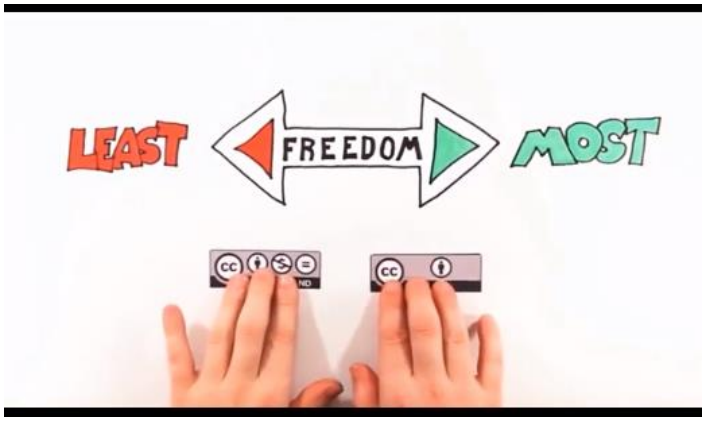
Key:

 Attribution	 ShareAlike	 NonCommercial	 No Derivatives

Take Note

There is also a CC0 symbol known as Creative Commons Zero or "No Rights Reserved." This enables the resource to be placed in the public domain. The work is freely available without copyright restrictions.

You can view this video clip for a summary of the range of Creative Commons licensing from most open to most restrictive.



Policy on No Derivatives

The "ND" (or no derivatives) restriction in a CC license simply means that the resource must be used "as is" with no modifications and must be redistributed in its entirety, as originally published.

This restriction may not be viable for some since modifications may be needed to the OER to fully comply with ADA accessibility requirements. Also, you will need to remove third-party content that is not openly licensed. These types of changes are not permitted with OERs published under an ND CC license.

What About Public Domain Resources?

Typically, public domain, or PD, resources are materials published by the US government and/or one of its departments or agencies (such as the US Department of Justice or the Environmental Protection Agency). Other PD resources include works that were once under copyright but whose copyright protection has lapsed and are now in the public domain.

An example of a public domain resource is a report from the Department of Education, Reimagining the Role of Technology in Higher Education. You can find the licensing and permissions information on page 3 of the report.

OERs and Third-Party Content

Perhaps one of the trickiest issues when vetting OERs deals with third-party content included in a resource that has a viable CC license. Many OERs include third-party content--images, videos, tables, and other graphic elements--that is copyrighted/closed and used with the permission of the rights holder.

When you are pre-vetting an OER for DR compliance, you will need to evaluate the resource carefully to identify if any content such as an image includes a copyright symbol or notice, or the words "used with permission" or "courtesy of." Some may include a date and name of the copyright owner. Any materials that are copyrighted with all rights reserved cannot be shared without the copyright holder's permission.

Pre-Vetting to Full DR Review

At this stage, you are pre-vetting the OERs to make sure that they meet the baseline criteria discussed above. You can then perform a more extensive vetting of the resources to ensure that each one is licensed under Creative Commons, that all closed/copyrighted third-party content has been removed from the resource, and that each OER fully complies with ADA accessibility standards.

Key Points

- The process of pre-vetting OERs compliance includes checking if content is openly licensed or in the public domain and all third-party content within the resource is openly licensed.
- Creative Commons (CC) licenses provide a way to share content without creators having to give up their copyright or license their work.
- There are six types of CC licenses and each requires an attribution that identifies the author/creator, indicates the CC license under which the work is published, and provides the copyright notice (when available).
- OERs with a "no derivatives" restriction must be used “as is” with no modifications.

Quiz: Multiple Choice

To assess your learning, complete the following quiz questions.

Question 1

If you created educational content and wanted to publish it under an open license, which CC license would you choose that requires that the work is attributed to you but would not have any other restrictions?

1. CC BY

2. CC BY-NC
3. CC BY-NC-SA
4. CC BY-SA

Answer: Option 1: CC BY: A license to use the content without any restrictions. As with all CC licenses, attribution is required.

Question 2

Select the best explanation of an open license that you might share with your colleagues and students.

1. Open licenses enable creators to share their work freely with others who may then reuse, revise, improve upon, or create new work based on the original work. Creative Commons (CC) licenses are the legal tools that make the 5Rs possible.
2. Open licenses are the same as public domain, allowing free access to the materials and do not require attribution.
3. Open licenses are reserved for educational materials that can be shared and used for teaching and learning purposes only.

Answer: Option 1. Open licenses enable creators to share their work freely with others who may then reuse, revise, improve upon, or create new work based on the original work. Creative Commons (CC) licenses are the legal tools that make the 5Rs possible.

References

US Department of Education, Office of Educational Technology. (2017). Reimagining the role of technology in higher education: A supplement to the National Education Technology Plan.

What Is Accessibility and Why Is It Important?

Definitions of Accessibility in Education

In an educational setting, ensuring accessibility means removing barriers from physical spaces and instructional materials to enable all students equal access, including individuals with hearing and vision impairments, as well as physical and cognitive disabilities. When you explore these accessibility requirements in more detail, there are two definitions to keep in mind.

> Accessibility, as defined by the US Department of Education's Office for Civil Rights, means providing students the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as students without disabilities with substantially equivalent ease of use.

With advances in technology and the global reliance on the internet, the concept of accessibility has expanded to include digital content, which requires specific technology-based solutions to address what is known as digital accessibility.

> Digital accessibility refers to the ability of all users to easily navigate digital content including websites, online classrooms, and mobile apps, and also have an equal opportunity to the educational benefits and opportunities afforded by these technologies.

Individuals with disabilities may use assistive technologies such as screen readers and modified keyboards to help them access and navigate digital content. Some examples of digital accessibility features and tools include:

- videos with captions and transcripts for users with hearing impairments
- images with alternative text (alt text) for users with visual impairments
- screen readers to convert on-screen information into speech for users with visual impairments
- keyboard navigation on websites for users with physical impairments

Accessibility Laws and Standards

As higher education increasingly expands its digital content and tools for students and faculty, it is critical to adhere to federal and state laws and industry standards to ensure all learners can benefit from these opportunities. Digital accessibility also enhances the overall user experience and contributes to a universal design that benefits all students and staff members.

The primary laws and standards that apply to digital accessibility, and are especially important for educational institutions, include the following:

The Americans with Disabilities Act (ADA) of 1990, revised 2008	A civil rights law that requires state and local governments to give people with disabilities an equal opportunity to benefit from all of their programs, services, and activities. These areas include, but are not limited to: • public education • employment • transportation • recreation • social services • town meetings
Section 508 of the Rehabilitation Act of 1973: 1998 Amendment	Section 508 is a 1998 amendment to the Rehabilitation Act of 1973 and requires that all digital/electronic content created, developed, purchased, maintained, or used freely by a federal agency or institution must be made accessible to all users regardless of their disability. Digital content includes, but is not limited to: • documents • websites and web pages • applications • multimedia • presentations • university-wide communications (emails, newsletters, etc.)
Web Content Accessibility Guidelines (WCAG) 2.1	As part of the World Wide Web Consortium (W3C), the Web Accessibility Initiative has developed standards to help people understand and implement accessibility more easily. These international standards incorporate Section 508 requirements and are called Web Content Accessibility Guidelines (WCAG) 2.1. The WCAG guidelines are widely used by educational institutions to identify what constitutes accessible web content and best practices for compliance. The guidelines use three levels of compliance (A, AA and AAA), with most entities striving to meet Level AA.

Why Is Accessibility Important?

There are many reasons why accessibility is important to all individuals, not only to protect their civil rights but also to enhance their quality of life. Designing for accessibility using universal design principles benefits all students regardless of their ability. For example, providing closed captions for videos support students who are deaf or hard-of-hearing, and also supports diverse learning styles and nonnative language speakers. Here is a video on accessibility.

Accessibility in Higher Education

In this section, we will focus on accessibility in the higher education sector and highlight essential aspects of an institution's mission and overall approach to supporting student success.

With the rapid pace of technology advancements and the expanding global economy, the number of students seeking higher education, including students with disabilities, has increased in recent years. To serve this diverse student population, higher education institutions must provide inclusive learning environments with comprehensive accessibility policies and procedures, as well as the technology infrastructure to continually enhance their digital accessibility.

Accessibility for all students is supported in the following ways:

- Inclusive education: As an inclusive education provider, it is important to provide all content in a format that is accessible for everyone who attends, works in, or is interested in getting information about their institution.
- Mission and core values: Ensuring accessibility is an integral part of an educational institution's mission as well as its teaching and learning philosophy.

- Equitable learning community: Accessibility ensures that everyone is treated fairly and creates an environment suitable for learning. It also enriches the student population, providing different backgrounds, perspectives, and talents.
- Legal requirements: Accessibility is the law. Public colleges and universities that fail to resolve issues of equal access face penalties and fines, as well as loss of federal funding and accreditation.

Key Points

- Accessibility means removing barriers to enable all students equal access, including individuals with hearing, vision, physical, and cognitive disabilities.
- Digital accessibility focuses on designing digital content and systems to be equitable and easy to use for all, including students with disabilities.
- The Americans with Disabilities Act (ADA) is a civil rights law that provides individuals with disabilities equal opportunity to engage in programs, services, and activities.
- Section 508 of the Rehabilitation Act of 1973 (1998 Amendment) requires electronic content to be accessible to all users regardless of their disability.
- The Web Content Accessibility Guidelines 2.1 (WCAG 2.1) identify what constitutes accessible web content and best practices for compliance.
- While accessibility is required by law, educational institutions are committed to providing an inclusive environment for all.

Review and Reflect

To reinforce your learning, answer the following reflective questions.

Question 1

The terms "accessibility" and "digital accessibility" address different aspects of describing equitable access to educational opportunities. How would you describe these terms and highlight the differences?

Answer: The concept of accessibility has its roots in the earliest efforts to protect individuals' civil rights by providing accommodations for physical accessibility to public places. To address evolving technology advancement, digital accessibility focuses on the standards to ensure equitable access to web-based content.

Question 2

While the increase in online learning in higher education has expanded opportunities for diverse learners, it also brings challenges to ensuring the digital content is accessible by all learners. To address accessibility, two US laws were passed that prohibit discrimination of individuals with

disabilities and govern how universities provide their educational programs.

Identify the two specific laws and reflect on how they are different, especially with regards to digital accessibility.

Answer: The Americans with Disabilities Act (ADA) is broader in scope, protecting an individual's civil rights in all areas of public life, while Section 508 of the Rehabilitation Act is more specific to technology accessibility to ensure it can be used effectively by those with disabilities.

References

Center on Technology and Disability. (2016, October). *Digital accessibility toolkit: What education leaders need to know.* http://www.ctdinstitute.org/sites/default/files/file_attachments/AccessibilityToolkit-508_FINAL_100616.pdf

National Science Foundation, National Center for Science and Engineering Statistics, National Survey of College Graduates, 2017.

US Department of Education, Office of Civil Rights. (n.d.). Resolution agreement: CR Compliance Review No. 11-11-6002. https://www2.ed.gov/about/offices/list/ocr/docs/investigations/11116002-b.html

US Department of Education, National Center for Education Statistics. (2016). Postsecondary education. In *Digest of Education Statistics, 2015* (2016-014). https://nces.ed.gov/programs/digest/d15/ch_3.asp

Web Accessibility Initiative. (2016, May). Accessibility, usability, and inclusion: Related aspects of a web for all. https://www.w3.org/WAI/intro/usable