Clarity Innovations

OER: An Approach for Teachers

White Paper

Introduction to OER

TOWARDS A DEFINITION

Open Educational Resources, or OER, is a movement that has become synonymous with a sentiment of sharing in the education world. But what exactly is OER, and how is it different than the informal environment of openness and fair use in the field of teaching and learning? It turns out that everyone has a different definition[1].

OER Commons, a digital repository of OER resources, defines it as: "Open Educational Resources are teaching and learning materials that you may freely use and reuse at no cost, and without needing to ask permission. Unlike copyrighted resources, OER have been authored or created by an individual or organization that chooses to retain few, if any, ownership rights.[2]

With the advent of the Internet and the globalization of communication, the possibility of spreading education to a wider audience is nothing new. However, with that openness comes the potential for copyright infringement.

Q In the education world, borrowing and remixing is common among teachers, yet how can we be sure in this information age that we are doing so while giving credit to the creators of content?

Q How can we utilize the collective effort of fellow educators, incorporating bits and pieces of knowledge and collateral into our classrooms, all while modeling appropriate treatment of others' intellectual property?

Q More practically, how can we be sure we aren't "reinventing the wheel," and when we do, how can we help our fellow educators benefit from our work?

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1 "What Is OER?" *Wiki.creativecommons.org*, accessed May 19, 2017, https://wiki.creativecommons.org/wiki/What_is_OER%3F.
2 "OER Commons," *OER Commons*, accessed May 17, 2017, https://www.oercommons.org/about.

THE SPIRIT OF OER

The practice of supplementing, augmenting, and even re-creating our curriculum based on materials online is widespread. Most educators are accustomed to "patch-working" their curriculum. Textbooks are often a useful component, but are often not sufficient for an entire curriculum suited to different learners, may be incredibly expensive, and may be outdated. OER seeks to formalize what educators have long been doing: supplementing their curriculum based on relevant global issues, the learners and learning styles in their rooms, and their own strengths and areas of improvement. The OER movement hopes to streamline this process for teachers, democratizing education by freeing it from the proprietary restrictions of copyright ownership, bringing it above-ground in order to create a library of resources that are in a constant state of reinvention and improvement.

OER can assist teachers who may wish to:

- Replace some of the instructional materials in their classrooms, perhaps replacing a chapter or two in the textbook, or finding a more dynamic vocabulary workbook;

- Address gaps in the curriculum with supplementary resources, like an additional unit or material extending a mathematical concept for learners who are ready;

- Align resources with new standards adoption, whether state or national; and/or,

- Implement new modalities of learning with students to better suit their own personalized learning style, such as an interactive segment of instruction rather than a lecture.

THE NUANCES

It is important to understand the full definition of a resource that is technically an "Open Educational Resource." On one hand, a resource that is free and easily accessible may be presumed by many to be OER. However, in order for a resource to truly be a part of the OER ethos, it must be "open" to adjustment, editing, and revision (i.e. David Wiley's 5 R's, referenced later[3]). Therefore, if a resource is open and free, but not technically "usable" in any active sense—and is only available for passive consumption—it is not under the OER umbrella. Keep in mind that although a resource may be accessed for free and without a membership, it may not be technically legal to adjust it. For example, if a teacher finds a worksheet on a website yet wishes to adjust the vocabulary presented on the sheet, it may not be technically legal to do so unless the worksheet has certain copyright provisions.

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3   David Wiley, "The Access Compromise and the 5th R," *Lumen Learning*, last modified March 5, 2014, https://opencontent.org/blog/archives/3221.

★ THE 5 R'S THAT COMPOSE AN OPEN EDUCATIONAL RESOURCE

Retain: It is used, kept, made copies of. It is printed or placed on a personal website. If you cannot retain a copy of it (e.g., an episode of a Netflix show), it is not open, even though you have "access" to it.

Reuse: The resource will be employed, referred to, and utilized in instruction and assessment.

Revise: It is permitted/expected that improvements, revisions, and changes would be made to the original to suit your needs.

Remix: You are free to combine several resources into one; the same permissions that exist for a single OER resource apply to two or more OER resources.

Redistribute: You are free to put this new work out into the world and allow the next educator to begin the 5R's all over again.

Keeping in mind the original purpose and intent of OER, it's not possible for a resource to comply with only a few of the R's above—if you can reuse it but can't revise it, it's technically not OER. Yet, consider the question from the individual teacher's perspective: Is something "OER" if I can access at no cost, utilize in my classroom, and even embed on my website, but I can't edit the video and combine it with another? To many teachers, this kind of restriction wouldn't concern them; but to others, finding the yes-or-no answer to the question is at times difficult.

A common example of this kind of gray area is Khan Academy[4]. Khan Academy has come to be known as a supplemental resource for teachers, due to the short videos explaining concepts (now fully outfitted with a larger website to engage in practice work). This 501(c)(3) organization, whose mission is "to provide a free world-class education to anyone, anywhere," is listed on several OER lists[5]. In an interview, Salman Khan acknowledges Khan Academy as being part of the OER movement[6], yet trying to verify the copyright status of the material itself is difficult. On one hand, the material is free for anyone to use, and on the bottom of a 3rd grade math exercise[7], the material is stated to be Creative Commons Attribution/Non-Commercial/Share-Alike. However, on a different page for a fourth grade math practice exercise[8], there is no copyright information. Across Khan Academy as a whole, it's difficult to establish the site's copyright. In the fine print, Khan Academy provides resources for those who believe their copyright has been infringed upon[9]; yet a blanket statement or Creative Commons license over all the site's material is not to be found. However, David Wiley—CEO of Lumen, coiner of the 5 R's and member of Creative Commons—cites Khan Academy as being part of OER.

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4   "Khan Academy," *Khan Academy*, accessed May 20, 2017, https://www.khanacademy.org/.

5   "Videos," *Open Washington*, accessed May 18, 2017, http://www.openwa.org/category/videos/.

6   Stephen Noonoo, "Khan Academy Talks Analytics, Journals, and iPads," *The Journal*, last modified April 5, 2012, https://thejournal.com/Articles/2012/04/05/Khan-Academy-Talks-Analytics-OER-and-iPads.aspx?Page=2.

7   Sal Khan, "The Idea of Division," *Khan Academy*, accessed May 19, 2017, https://www.khanacademy.org/math/arithmetic/arith-review-multiply-divide/arith-review-division-intro/v/the-idea-of-division.

8   "4th Grade Math Practice," *Khan Academy*, accessed May 19, 2017, https://www.khanacademy.org/math/cc-fourth-grade-math?t=practice.

9   "Digital Millennium Copyright Act Notification Guidelines," *Khan Academy*, accessed May 19, 2017, https://www.khanacademy.org/about/dmca.

It is this search (rather than its answer) that epitomizes the meticulousness necessary to establish a wholly-OER object. Few teachers have time or concern to comb through all materials, attempting to verify whether or not every page has a creative commons license attached to it. What concerns the teacher is the quality of the material, the cost of the material, and the ease of use. Only if a teacher is writing curriculum to be distributed outside of the classroom, a curriculum that utilizes Khan Academy materials, would he or she be concerned with copyright. Thus, it seems that each teacher would potentially care more about the first few R's than the last one ("Redistribute").

While the sentiment behind OER is on one hand cost and on the other copyright, it may seem that, for the individual teacher's use, only the first half of this definition matters.

Of course, as districts/local education agencies (LEAs) begin to write—or perhaps in the case of OER, assemble—curriculum, the copyright of such materials does matter. The larger the scale, the more resources a movement has. So while a teacher only has his or her own time, a district or larger Local Education Agency (LEA) may have an allotted timeline, a designated team, milestones, and a budget. As the team comes together to write/create/aggregate/curate curriculum, the question of true openness and copyright permissions does come into play.

Many large-scale OER initiatives occur in the public school sector, and therefore the product is funded by tax dollars and thus owned by the people. This means that OER curriculum that is created is added to a larger "library," a collection that can be picked up by another district/LEA.

Key to this understanding is the adoption of national standards, the Common Core State Standards for English Language Arts (CCSS) and Math and the Next Generation Science Standards for Science (NGSS). Because of this standardization, OER created with government resources (i.e., in the public education sector) are increasingly more applicable.

"OER-ENABLED PEDAGOGY"

David Wiley, Chief Academic Officer of Lumen Learning and Education Fellow at Creative Commons, states that he is ready to depart from the very definition-establishing conversation that is addressed above. He believes that this meandering, ongoing discussion of what OER means prevents any stability to the movement itself, essentially giving it permission to remain an conceptual ideal rather than an actionable plan. He introduces the idea of a new definition, one that matters to the implementation of OER: "OER-enabled pedagogy[10]." His rationale for this hinges upon the following concrete assumptions:

1. We learn by the things we do;

2. Copyright restricts what we are permitted to do;

3. Consequently, copyright restricts the ways we are permitted to learn;

4. Open removes these restrictions, permitting us to do new things; and,

5. Consequently, open permits us to learn in new ways.

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10 David Wiley, "OER-Enabled Pedagogy," *Lumen Learning*, last modified May 2, 2017, https://opencontent.org/blog/archives/5009.

In order to continue the conversation around OER in a meaningful, impactful way, he proposes a new definition. In his words, "OER-enabled pedagogy is the set of teaching and learning practices only possible or practical when you have permission to engage in the 5R activities." It is only at this intersection that real improvements in education can be made, and therefore is Wiley's only concern.

David Wiley's blog[11] catalogues his evolving work with OER, including conversations with the movement's stakeholders and opinions on the future of OER.

★ OUR WORKING DEFINITION OF OER

For the purpose of this document, we will assume that Open Educational Resources (OER) include any learning object—a lesson plan, a video, an image, a full textbook, an open online course, etc.—that is free of cost and open to some degree of alteration. We may cite resources that one can retain, reuse, remix, but may not have the rights to redistribute in its new remixed form. This definition attempts to be as inclusive of resources as possible while remaining pragmatic and candid about the hierarchy of educators' priorities. This definition assumes that some copyright permissions are more important to the autonomous teacher (free to retain and reuse) than others, and therefore includes some OER that strays from David Wiley's definition.

HISTORY OF OER

OER Roots

OER's origins lay with MIT's OpenCourseWare movement. In 2001, MIT decided to release their courses in an online format, free to anyone who wished to access it. Karen Wilcox, MIT professor of Aeronautics and Astronautics, explains that this initiative is mutually beneficial: "It makes everybody better. It creates a community of self-learners[12]."

In 2002, UNESCO had a small forum to discuss this initiative, hoping to "internationalize the MIT OpenCourseWare." Those in attendance were representing many international universities, and their chief concerns were:

• *Accessibility and Equity*: How can we make sure that education is available to everyone?

• *Global Professional Development*: How can we take the best courses from each university and allow them to grow other instructors from another university?

• *Cultural Responsiveness*: How can we translate these courses and make sure they're accessible to our local population?

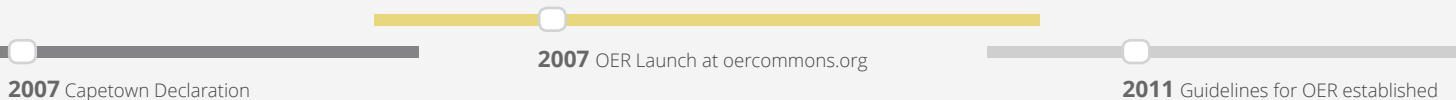11 David Wiley, "Iterating Toward Openness," *Lumen Learning*, accessed May 22, 2017, https://opencontent.org/blog/.
12 "About OCW," *MIT OpenCourseWare*, accessed May 15, 2017, https://ocw.mit.edu/about/.

It was at this 2002 forum that the term "OER" was coined, and the participants walked away with more ideas (i.e. "We should make a centralized repository for these resources and establish a standardized format") than actual, formalized tangibles. A decade later in 2012, UNESCO met to "celebrate" ten years of OER, yet the meeting was still very much the same, asking the same questions and voicing the same concerns as in 2002. This meeting, as the others listed below, mostly served as a platform to establish a joint understanding of what OER is, the spirit behind it, and to pledge communal/institutional support to the spirit of openness and sharing. Many words like "foster," "support," and "encourage" are present in the subsequent documents, yet no solid rules or repositories seem to have solidified.

Discussion and Evolution

During the ten years between UNESCO's forums, many other initiatives were taking place, some nodding acknowledgment to UNESCO, others potentially unaware of UNESCO's own involvement because of a lack of concrete presence in the movement. The following are a few important dates:

• 2007 Capetown Declaration[13], self-described as "at once a statement of principle, a statement of strategy and a statement of commitment," meant to "spark dialogue, to inspire action and to help the open education movement grow"

• 2007 Institute for the Study of Knowledge Management in Education (ISKME) launches OER Commons at oercommons.org

• 2011 UNESCO and Commonwealth of Learning established the Guidelines for OER in Higher Education[14]

2007 Capetown Declaration

2007 OER Launch at oercommons.org

2011 Guidelines for OER established

One concern that is repeated throughout meetings of this nature was and is the need for a centralized OER repository: one place that educators and stakeholders can go to access OER that is ensured to be of a degree of quality and standardization. It seems that, after each meeting and initiative, along with other organizations and companies that were not affiliated, a new repository for OER sprang to life. Today, the most centralized repository is ISKME's OER Commons[15], which catalogues available resources, including an index by provider, where a user can see just how many organizations offer OER.

Inspired by a concurrent movement in the computer software industry, a group of stakeholders met in 2002 to establish Creative Commons, a nonprofit licensing agency whose mission is to provide licensure in readable, accessible language in order to inspire more creators (whether of computer code or education

13 "The Cape Town Open Education Declaration," *Shuttleworth Foundation*, accessed May 17, 2017, http://www.capetowndeclaration.org/.
14 "Guidelines for Open Educational Resources (OER) in Higher Education," *United Nations Educational*, Scientific, and Cultural Organization; the Commonwealth of Learning, 2015, http://unesdoc.unesco.org/images/0021/002136/213605E.pdf.
15 "OER Commons," *OER Commons*, accessed May 17, 2017, https://www.oercommons.org/.

materials) to open up their work with an official, legal license.[16] The advent of Creative Commons is important to consider, as it allows for everyday creators to share their work freely, while still establishing original ownership. Many countries have pledged a certain level of commitment to keep the Creative Commons community thriving, such as adding their own open libraries of resources with CC licensure, though much of the educational commitments still remain at the higher education level.[17]

Meanwhile, the movement has spread from higher education to K-12, with the concurrent advent of many things, including: Khan Academy (begun by an MIT student, perhaps inspired by his university's Open Courseware initiative); iTunesU moving to K-12 curriculum; a political movement to lower the cost of textbooks (most notably in California with Governor Schwarzenegger's Free Digital Textbook Initiative[18]); and the Department of Education's Office of Technology's "Go Open" Initiative.

> Check out Course Hero's **infographic** on the history of OER for a visual overview of the movement[19].

#GoOpen Initiative

The 2015 #GoOpen Initiative, under then Education Secretary Arne Duncan, stipulated that any educational materials created with Federal Department Grant Funds would be owned by all, open to the public. The intent was as follows: "Openly licensed educational resources support teachers as creative professionals by giving them the ability to adapt and customize learning materials to meet the needs of their students without breaking copyright laws," said Richard Culatta, Director of the Office of Educational Technology[20].

In order to "#GoOpen," a district commits to plan, strategize, and create openly-licensed educational resources specifically tailored to the district's needs that others can benefit from. Many districts have committed to #GoOpen, often utilizing the Department of Ed's "#GoOpen District Launch Packet[21]" as a place to start. If educators are in a #GoOpen district, they may have heard of a district team creating curriculum using OER, and releasing that curriculum to its teachers and to the public.

The #GoOpen initiative ideally will lessen the load for teachers, since a district's team may develop the exact resource you need. However, as of now, the only resources that are readily findable are ones that equip new districts to get on board (e.g. the Launch Packet), rather than directing a teacher to educational by-products the initiative has produced. The nearest repository we've found is Learning Registry[22], a link found on the Office of Educational Technology's #GoOpen page, yet the resources do not seem to include

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16 "Module 5: Creative Commons Licenses," *Open Washington*, accessed May 17, 2017, http://www.openwa.org/module-5/.

17 "OER Case Studies," *Wiki.creativecommons.org*, accessed May 19, 2017, https://wiki.creativecommons.org/wiki/OER_Case_Studies#Featured_OER_Case_Studies.

18 "Free Digital Textbook Initiative," *California Learning Resource Network*, accessed May 17, 2017, https://web.archive.org/web/20090618115547/http://www.clrn.org:80/FDTI/.

19 "Infographic: A History of Open-Educational Resources," *Course Hero*, last modified May 31, 2012. https://www.coursehero.com/blog/2012/05/31/infographic-a-history-of-open-educational-resources/.

20 "U.S. Department of Education Launches Campaign to Encourage Schools to #GoOpen with Educational Resources," *U.S. Department of Education*, last modified October 29, 2015, https://www.ed.gov/news/press-releases/us-department-education-launches-campaign-encourage-schools-goopen-educational-resources.

21 "#GoOpen District Launch Packet," *Office of Educational Technology*, accessed May 20, 2017, https://tech.ed.gov/open/districts/launch/.

22 "Learning Registry," *Learning Registry*, accessed May 21, 2017, http://learningregistry.org/.

district-authored items. This absence represents an urgent need for educators, both as users and advocates for OER: a clear, centralized repository featuring the subsequent learning objects borne of the #GoOpen initiative. Randy Wilhelm of Knovation Learning[23] remarked upon this lack of organization almost a year after the #GoOpen initiative began, saying, "Not surprisingly, even the most technology-savvy educators struggled to locate materials for instruction in the open education ecosystem. A lack of systemic organization, poorly identified pockets of resources and the lack of qualified OER "curators" hampered their efforts."[24] He cautioned that more must be done to aggregate these "pockets" in order to maximize teacher time and effort, or the OER momentum would lapse. A strong example of state-led aggregation is EngageNY, a well-organized, Common Core-aligned curriculum accessible to anyone, free of charge[25].

The #GoOpen initiative specifically targets the idea of money: districts can invest the money that was previously routed for textbooks (which are finite, quickly outdated, and expensive) into a digital initiative. However, this seems to have led a misunderstanding of the definition of OER (discussed above) and conflated it with a digital initiative. It is possible to have a digital initiative that has nothing to do with OER; it's possible for a school to utilize OER without necessarily being 1-1 or even having devices in the classroom at all (e.g., a teacher could find the OER him or herself, print them out, distribute and conduct class). An example of this conflation is a video put forth by the Department of Education, spotlighting Williamsfield School District's "OER" initiative, yet the video only discusses digitized content (which could easily be proprietary and not OER).[26]

From Higher Ed to K-12

When considering what OER means for K-12, it's important to understand the different objectives in Higher Ed. First of all, as this initiative began, it was originally being explored on an international scale. Thus, the University of Mauritius was interested in MIT's OpenCourseWare in order to grow its own course offerings. In the 2002 UNESCO forum, much of the documentation cites a desire to professionally develop professors using the content from other courses at other universities. Thus, it was meant to be consumed from professor to professor: the student was a beneficiary of the process, but not necessarily a consumer.

Additionally, when the student did enter the conversation, it was because the professor was considering what changes (if any) were necessary to better serve his/her constituents as opposed to the previous students. This could be as simple as a language change (from MIT courses to a university in Brazil), or could be more in-depth, such as relevance (MIT courses that discuss issues that students in India wouldn't find pertinent). As these changes were considered, it was of course necessary to ensure that the courses were free to alter, edit, and change with permission, while honoring the original. Yet the conversation still centered around open materials to be shared among university educators to develop their own courses.

When transposing these scenarios to the K-12 environment, certain things change. First, the level of adoption in K-12 greatly fluctuates. For example, a textbook adoption might happen at the state level, at the district level, at the school level, or at the teacher's discretion. Therefore, materials can be negotiable (if they are chosen by the teacher), or they can be fixed, depending on the scale of adoption. So, when it comes to a

23 "Knovation Learning," *Knovation Learning*, accessed May 19, 2017, http://www.knovationlearning.com/.
24 "#GoOpen: So You've Embraced OER? Now What?" *Ed Scoop*, last modified November 8, 2016, http://edscoop.com/go-open-so-youve-embraced-oer-now-what.
25 "Engage NY," *Engage NY*, accessed 22 May, 2017, https://www.engageny.org/.
26 "Open Education," *U.S. Department of Education Office of Educational Technology,* accessed May 15, 2017, https://tech.ed.gov/open/.

teacher's concern with OER (i.e. whether something is free of cost and free to adjust/edit/change), it depends on the level of autonomy with which a teacher can select his or her teaching materials.

If a teacher has full autonomy to choose the materials that make up their course, it is obviously beneficial to have access to a wealth of materials, free of cost. However, in this scenario, the second half of the definition of OER—its ability to be remixed, reimagined, and redistributed to others—is less of a concern. Many if not most teachers are less concerned with copyright, protected as they are by Fair Use copyright laws. Whether or not Fair Use is fully understood, or whether or not teachers' concern with copyright is ethical is, for the purpose of this discussion, notwithstanding. When copyright would become a concern for many teachers is if they would like to make public and usable any curriculum. This question of altruism seems a luxury, as many teachers are simply trying to do their best by their students and don't have the time to commodify and distribute their materials. Thus, the safety and ethics of Creative Commons and open copyrighted materials (especially with the amount of material to be incorporated into today's classroom) is not of utmost pertinence to the average K-12 teacher.

Where the question of OER does become relevant is with statewide and districtwide (and to a small degree, school-wide) adoption. Because districts would be adopting OER as textbooks and then potentially adjusting them with their own curriculum writing team, it is of course necessary to ensure free and open copyright permissions. This is more akin to the original higher ed OER intention—organization to organization—rather than the teacher finding a worksheet online on Monday and utilizing it for instruction in class on Tuesday.

OER AND THE INDIVIDUAL TEACHER

OER Relevance for Individual Teachers

If a teacher is not part of a district/LEA/school that is interested in adopting OER on a full scale, the conversation of OER shifts. If we take a look at a typical classroom, we may see a teacher who on many levels is engaging with the kinds of practices that OER looks to support, such as:

> • Changing or supplementing certain chapters in the textbook with another resource
>
> • Adding videos to the course
>
> • Integrating pre-made, online quizzes into certain units
>
> • Adding an additional layer of instruction, like a vocabulary unit or a complementary history module alongside a novel

All of these endeavors look familiar to good classroom instruction—augmenting, bolstering, bridging the gap between curriculum and current events, highlighting cultural relevancy, and making learning as accessible as possible. OER seek to add to this library, allowing teachers more to choose from that is somewhat ensured in quality, potentially aligned to standards, and, of course, free to use and open to modification.

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Where the question of copyright concerns teachers are ethics and student-usability. As we encourage students to cite their sources and avoid plagiarism, it becomes difficult to enforce this when we ourselves are potentially committing infractions. Where possible, we cite our images and thank our contributors. OER demystify this choice for teachers, even affording them the opportunity to discuss copyright, ownership, and ethics with their students. This conversation becomes increasingly important when we encourage students to make their own art of the world. If students would like to create a mashup, a video mix, or perhaps their own mini-lesson to teach their peers, knowledge of OER would greatly benefit them, both as a source of material and a sentiment of open-ownership.

OER BENEFITS

Quality

• *Updated and Current*: Unlike textbooks, which are printed and can become quickly outdated, the digital nature of OER means resources can remain updated and current with each wave of research, shifts in the political climate, and global events. Culturally responsive pedagogy hinges on the idea of incorporating students' worlds into instruction, from the macro level of international politics to the minutiae of the current viral video. With OER, this incorporation is live and ongoing.

• *Classroom Customization*: Each classroom is as different as the students inside it. Not every resource is a perfect fit as-is. As instructors encounter more and more OER, their library of possibilities grows. If an instructor believes that students need a more ambitious unit on quadratic equations, they can adopt a more advanced resource for that particular part of the curriculum.

• *Aligned to Standards*: The adoption of national standards like CCSS widens the applicability of OER. Rather than instructors evaluating the "leveled" ability of a resource (e.g., a third grade standard in Florida is actually a second grade standard in Texas, etc.), resources that are aligned to the national set of standards—even if a district's particular state has not officially adopted the standards—remove the guesswork and allow easier "cross-walking" of content.

• *Not Beholden to Constituents*: Curriculum vendors, whether they are textbook companies or not, have to keep their constituents in mind. They write their content to keep their vendors buying it, whether it's the treatment of certain content matter in politicized states or emphasis on certain standards over others.

Collaboration

• *Multiple Voices in the Conversation*: Because of the collaborative sentiment around OER and the initiative to globalize the content, more voices are able to be included in the conversation; more cultural perspectives shared; more for students to interact and identify with.

• *Contribute Beyond Your Classroom*: With OER, instructors become curators and architects of curriculum—as they have been for years—with the increased ability to circulate their own creations to other instructors to grow the collective. While copyright issues may seem irrelevant when it comes to the four walls of a classroom, if material is ever to transcend a teacher's particular situation and serve the greater good, OER ensure that copyright permissions are already in place.

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• *Collaborative and Artful*: The nature of OER is collaborative, widening the Professional Learning Community beyond a teacher's hallway and opening the possibility of a global partnership. While this is beneficial to teachers looking to grow, it is also beneficial to amplify master teachers' voices for the entire education community. OER elevates the art of teaching from a private practice to a public art, demonstrating that teachers not only teach: they curate, design, and reimagine.

Equity

• *Free from Cost*: Rather than "freemium" or "gated" content (discussed further below), has no cost mystery. Instructors won't be surprised with a paid requirement if they want to download a .pdf version. When this does occur, as with some digital library curriculum, the resource reveals itself to not truly be OER (which can at times be hidden within the terms of the resources itself and very frustrating to teachers). Searching within trusted OER repositories ensures that there will be no costly surprises and preserves the budget of the classroom. Note that, in the higher ed realm, the cost of textbooks can often be prohibitive to students[27], and thus OER offers more equity and affordability.

• *Increased Accessibility*: The definition of "openness" takes on a new meaning when considering learners who face challenges. Because OER can be remixed, altered, and adjusted, users are able to collaborate on ways to further "open up" a resource. If a video online doesn't have captions (and the user doesn't wish to risk YouTube's automatic captioning), a user can add them. If an instructor wishes to revise a lesson plan that previously centered on lecturing to become more kinesthetic, he or she has the permission to do so. An example of an equitable and accessible resource are TEDTalks, which have a video with audio component, and a follow-along transcript of the video below (yet interestingly, no TEDTalk can be modified in any way[28]— so they are not technically part of OER).

A **checklist** provided by the University of Washington[29] is a helpful accessibility evaluation tool, and with OER, the burden of widening a resource's accessibility doesn't have to fall on one individual teacher. Criteria include awareness about color contrast for those with color-blindness and intuitive tab order and organization.

• *Social Justice*: By being a user, advocate, and contributor to OER, teachers are supporting a global initiative to democratize education. Not every student has access to excellent education; not every teacher has

27 NBC News, "Rising Textbook Prices Mirror Rising Drug Costs," Youtube video, 3:06, posted [July 2015], https://www.youtube.com/watch?v=De1261aMknQ.
28 "TED Talks Usage Policy," *Ted.com*, accessed 16 May, 2017, https://www.ted.com/about/our-organization/our-policies-terms/ted-talks-usage-policy#h2--ted-talks-under-creative-commons-license.
29 "IT Accessibility Checklist," *University of Washington*, accessed 15 May, 2017, https://www.washington.edu/accessibility/checklist/.

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the same access to quality professional development. The education profession enjoys a unique privilege of (mostly) non-proprietary concerns. Teachers' earnings are, for the most part, not tied to their content creation, but rather the growth of their students. In the teaching profession, a rising tide truly raises all boats, so feel proud to engage in this global effort.

• *Modeling Ethical Behavior*: Teaching students the ethics of copyright, sharing, collaboration, and co-authoring is essential to preparing them for the workplace. With today's environment of instant sharing and re-appropriating, students are not only increasingly at-risk for copyright infringement, but at-risk for being caught. By calling attention to our own behavior in copyright honor and appreciation, we demonstrate the kind of ethical behavior we want from our students: we want them to engage in the global conversation, yet with respect and diligence. It is up to instructors to demonstrate the kind of contribution we hope our students will have on the global collective.

OER CHALLENGES

• *Lack of Awareness*: Unfortunately, the OER movement came about before the hashtag, and widespread adoption has been slow. Many educators are unaware of the initiative, unclear on its definition, and unsure about where to start. Therefore, it is often contingent upon a larger district-wide or school-wide initiative, which takes more momentum to get going. If more educators were aware and advocating for the movement, it's likely that more districts and schools would be incorporating OER into their initiatives.

• *Lack of centralized repository*: A barrier to budding users is the sheer number of OER libraries that apparently exist. Not only does an educator have to be aware of their existence, but they have to learn a new web interface, ascertain whether or not the resources are actually "open" in terms of copyright, familiarize themselves with new formatting and rubrics, and potentially encounter duplicates (i.e., MIT courses appearing in multiple locations). This treasure hunt can become an obstacle to teachers, who are already pressed for time.

• *Lack of Standardization and Vetting*: A benefit of OER is that anyone can contribute to the library of resources, in any format: a video, a lesson/unit plan, a textbook. However, this flexibility presents challenges, not the least of which is the lack of a standardized format. Educators may struggle to sift through the volume of materials and may not find worth in fitting them to their specific institutional standards. Some educators must align with a certain template for lesson plans, and others may require a checklist of features in their chosen textbook. Even if a resource fits the standard format required, educators must then spend a considerable amount of time vetting the resource for quality. Certain repositories have their own rubrics of evaluation, such as OER Commons utilizing the ACHIEVE rubric[30]; however, a user has to first agree with the rubric, trust others' ratings of the rubric itself, and in many cases, disregard whether or not the rubric has been filled out. For instance, an educator cannot search on OER Commons for resources that have been evaluated by others—a user can only fill it out[31].

• *Shift in Proprietary Mindset*: Some instructors may experience a shift in proprietary mindset, from one of private innovation within their four walls to one that asks that instructors make available their hard

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30 "Achieve OER Rubrics," *Achieve*, accessed 16 May, 2017, https://www.achieve.org/publications/achieve-oer-rubrics.
31 "OER Evaluation Tool," *OER Commons*, accessed May 14, 2017, https://www.oercommons.org/authoring/1506-oer-evaluation-tool/view.

work to others. If instructors do not feel they are benefiting from OER as much as they are expected to contribute to it, their efforts may feel wasted, or perhaps too altruistic to be mutually beneficial. Since some effort is required for an educator to make his or her material available, educators may need incentive, encouragement, and assistance.

• *"Freemium" and "Gated" Content*: As one might imagine, OER can be bad for business[32]. Textbook companies, curriculum providers, and membership-driven content sites can lose customers to OER if all they offer are the resources themselves. Additionally, just as teachers can be "fooled" into thinking a resource is "open" because it's free, an educator may be surprised by "freemium" content, that which appears to be free at the onset but charges later in the process (e.g. if you want full access to a resource; if you want to access more than an allotted number of resources). On the other hand, gated content asks users to surrender some personal information (email, zip code, etc.) to access content. Does this necessarily represent a barrier to the resource's label as OER? Does anonymity have a place in OER's definition? This is an example of the deeper, nuanced conversation about OER's underlying sentiment.

• *Incompatible with Current LMS*: This incompatibility can be actual and technical (e.g. a user cannot upload, embed, drag-and-drop, etc. the OER into the LMS) or perceived and pervasive (e.g. the LMS is not set up for teacher success or sharing, regardless of OER). The incompatibility can also extend to the mindset behind OER. LMS tend to "lock" the content away behind a wall, not only from other users around the world but from our own students, who may not be able to access information after a course's conclusion. However, depending on the LMS itself and the instructor's own dexterity of use, this may not be an issue at all.

UNDERSTANDING COPYRIGHT

Creative Commons

Though instructors may understand what constitutes an "open" resource (free of cost and open to alteration), at times it may be difficult to demystify the particular copyright permissions of a resource. Instructors should take care that, even if an OER is linked to a trusted library, any external links, videos, imagery, or supplemental components may be under different restrictions. They should not be, given that an OER is the sum of its parts and therefore everything should be 5R-compliant, but it is still up to teachers to ensure copyright permissions.

This call to action means that teachers should understand copyright permissions, and luckily, with the

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32 Frank Catalano, "The Unruly Playground: Free OER and Paid Digital Materials," *EdSurge*, last modified July 27, 2014, https://www.edsurge.com/news/2014-07-27-the-unruly-playground-free-oer-and-paid- digital-materials.

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advent of the Creative Commons, this demystification is getting much easier. Creative Commons licenses are comprised of four main elements[33] that can then be arranged into different combinations, all of which mean differing levels of permissions, all helpfully explained in a "human" version[34] and a "legal" version. The four elements are:

	LICENSE	GUIDELINES
	BY	**Attribution:** You let others copy, distribute, perform and remix your work if they credit your name as specified by you.
	ND	**No Derivatives:** You let others copy, distribute, display and perform only original copies of your work. If they want to modify your work, they must get your permission first.
	SA	**Share Alike:** You let others copy, distribute, display, perform and modify your work, as long as they distribute any modified work on the same terms. If they want to distribute modified works under other terms, they must get your permission first.
	NC	**Non-commercial:** You let others copy, distibute, display, perform, and (unless you have chosen No Derivatives) modify and use your work for any purpose other than commercially unless they get your permission first.

Essentially, the more Creative Commons elements present on a work, the more restrictive a work is. If a learning object has all four, a user may download and share a work with others as long as they correctly attribute it, but may not make any changes. Thus, not all learning objects with Creative Commons licenses fully comply with the 5R definition of OER.

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33 "Module 5: Creative Commons Licenses," *Open Washington*, accessed May 17, 2017, http://www.openwa.org/module-5/.
34 "About the Licenses," *Creative Commons*, accessed 19 May, 2017, https://creativecommons.org/licenses/.

Creative Commons License Types[35]
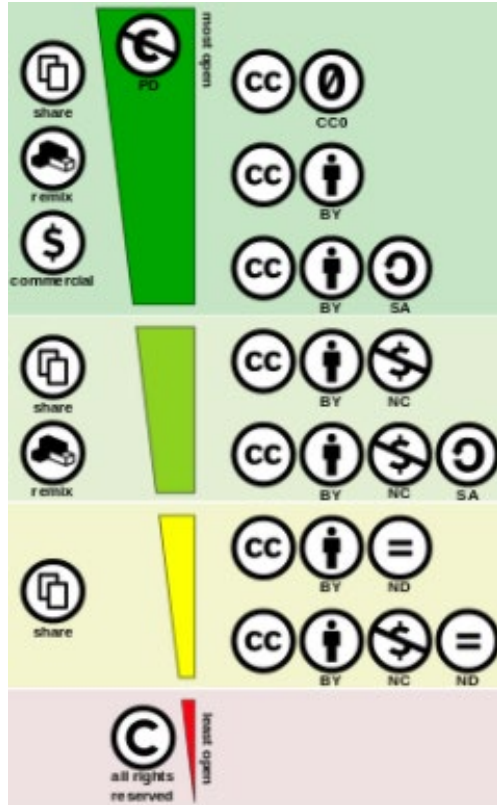
However, if a resource has a Creative Commons license, at minimum it is legal to retain, reuse, and redistribute it. Creative Commons has "blanket" agreements with several sites that they list on their own Terms of Use page[36], and users may find that list useful. For more information on the Creative Commons license, Open Washington (an OER Network) has an entire module devoted to exploring copyright[37].

YouTube, a popular classroom teaching tool, has the option to designate a video with a Creative Commons license (and subsequently appears in the YouTube Editor for those who wish to remix it), but if not done so, a video defaults to a standard YouTube license. Outlined in their terms of agreement, this license prevents any adjustment to or distribution of a video, and stipulates that it can only be played or embedded with specific YouTube players[38].

> In order to filter YouTube videos by those with a Creative Commons license, filter by "Features" and choose "Creative Commons." Keep in mind that "CC" means "Closed Captioned," not "Creative Commons."

FAIR USE

It's vital that educators also have a working understanding of fair use copyright. According to the U.S. Copyright Office, "Fair use is a legal doctrine that promotes freedom of expression by permitting the unlicensed use of copyright-protected works in certain circumstances."[39] In most cases, Fair Use protects the non-profit education sector, with a few things considered, such as "transformative use" (the work was used in a new, original way) and amount of copyrighted material used (a short clip from a t.v. series to begin class). Therefore, using an entire chapter from a copyrighted textbook may be more risky than a single paragraph. Essentially, where Fair Use becomes problematic is when a copyrighted material that one would otherwise pay for is being used and distributed to circumvent payment, or itself is being used commercially for profit.

Fair Use rulings can be extremely murky, as each Fair Use case is evaluated individually. The U.S Copyright Office explains that, "This means that there is no formula to ensure that a predetermined percentage or amount of a work—or specific number of words, lines, pages, copies—may be used without permission." There are no solid rules on Fair Use. When in doubt, YouTube provides helpful guidelines on "What Is Fair

35 "Creative Commons license," Shaddim, accessed May 24, 2017, https://upload.wikimedia.org/wikipedia/commons/e/e1/Creative_commons_license_spectrum.svg.

36 "Terms of Use." *Creative Commons*. Accessed 19 May, 2017. https://creativecommons.org/terms/.

37 "Module 5: Creative Commons Licenses," *Open Washington*, accessed May 17, 2017, http://www.openwa.org/module-5/.

38 "Terms of Service." *YouTube*. Accessed 15 May, 2017. https://www.youtube.com/static?template=terms.

39 "More Information on Fair Use." *Copyright.gov*. Accessed 16 May, 2017. https://www.copyright.gov/fair-use/more-info.html.

Use,"[40] and has often done some of the heavy lifting themselves, given that they have their fair share of Fair Use cases brought to them by users.

OER CLASSROOM APPLICATION

Finding OER

It doesn't take much effort to get started using OER. As with any new classroom initiative, it's possible to go slowly, use what is helpful, and resist the idea that a full transformation must take place immediately.

In an article published by Pearson[41], a quote of advice by Dr. Jill Buban of the Online Learning Consortium is captured:

> She suggest[s] that when choosing an OER, it is necessary to think about **copyright policies, the creative commons, course levels, and creativity**. She also [says] that some questions to consider are whether or not the material is something that you as an educator want to reuse, whether it will work for all levels of your course, and how you can creatively manipulate the materials to provide your students with all different types of perspectives (Buban, 2016).

With these things in mind, an instructor might pursue OER, yet another instructor may simply wish to browse for resources related to their current unit of instruction. Either way, finding OER resources can be challenging until a few favorites are narrowed down and relevant searches are bookmarked for quick re-access.

★ HELPFUL QUESTIONS TO CONSIDER WHEN PICKING YOUR FAVORITE OER

Just how "open" are these resources? As discussed, many resources fluctuate on their definition of "open," and even certain Creative Commons licenses mean differing levels of openness. One repository may feature all levels of licensure, and others may stipulate that every resource is CC-BY (Creative Commons, must give attribution). How much does the degree of alignment with the 5R's matter to your search?

Am I interested in higher education materials? Depending on your subject area and grade level, it may be very helpful to peruse repositories that at least include higher ed material. For example, an AP teacher may find college-level textbooks useful for supplementing curriculum.

Do I prefer OER that has already been evaluated or rated? Some repositories have a clear rating system, while others leave that evaluation to the discretion of the instructor. Others have a full rubric, while some have a simple five-star rating system.

How important is standards alignment? Some repositories feature a standard-searchable tool; others leave it up to the resource to display what (if any) standards it is aligned to. If you know that much of your searching will be by standard, that will be high on your list of preferences when finding your preferred OER repository.

40 "What is Fair Use?" *YouTube*. Accessed 15 May, 2017. https://www.youtube.com/yt/copyright/fair-use.html#yt-copyright-protection.
41 Sari Goldstein, "Open educational resources: Where and how to get started," *Pearson*, last modified April 28, 2017, http://www.pearsoned.com/education-blog/open-educational-resources-get-started/.

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Once the searcher's criteria has been established, an educator can spend some time exploring different repositories. We recommend bookmarking favorites for easy retrieval, even to the level of search criteria that will always apply (e.g. Math, 7th Grade, Videos).

> **Open Washington**[42] is incredibly useful for educators who are just getting started with OER. It features a brief curriculum on "Learning OER," including a Module on understanding Creative Commons licenses. To navigate through OER, this site aggregates resources based on type: Videos, Images, Course Materials, and Textbooks. Users are then directed to several repositories, including a few listed below. Of course, users should be aware of the specific states of "openness" of each resource, as with any site.

USING OER

As with similar classroom initiatives, like flipped instruction or 1-1 devices, a full-scale transformation need not take place immediately; smaller steps in targeted areas make for more purposeful change. OER can be integrated into the classroom in many ways, most of which educators are already doing on a daily basis. With OER, they can do so with many more resources at their disposal.

Substitution: Perhaps a textbook alternates between strong and weak chapters, or you're teaching during an election year and would like to include a related unit that is otherwise not present in the curriculum. Perhaps a history teacher wishes to swap out the chapter covering the branches of the U.S. Government in his current textbook, which he finds to be less robust that he'd like. He could substitute a chapter from an OER textbook, even one designed for a higher education course, depending on his students.

Remediation: Educators know that just because a concept is next in the curriculum doesn't mean that every learner is ready for it. In order to create a more personalized classroom, OER materials may be utilized on a more individualized basis to suit what learners may need. For instance, if a student is new to your school this year and needs instruction on the previous grade's grammar curriculum, a teacher can find a resource to supplement instruction to get that student up to speed.

Student Self-Direction: Students can become agents of their own learning with proper orientation to OER, watching instructional videos on polynomials on Khan Academy or reading a chapter from CK-12 on Impressionists artists to receive additional context. Directing students and parents to recommended OER on your class page or website can help everyone benefit from these tools.

Enhancement: Educators may wish to stick to their existing curriculum resource, whether it's a textbook, an online course, or a completely self-authored unit. If it works, it works! OER can help to enhance already strong curriculum, and breathe new life into tried-and-true units. For instance, an English teacher may wish to incorporate this year's Super Bowl commercials into her already-strong propaganda unit, and may benefit from another educator's OER lesson on the subject.

Extension: At times, it can be difficult to constantly challenge the advanced students in the classroom. OER can provide ready-to-use lessons to extend a student's learning, should they be ready for a more advanced

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42 "Open Washington." *Open Washington*. Accessed May 15, 2017. http://www.openwa.org/.

concept. In fact, the prevalence of higher education materials in the OER community can be incredibly useful for challenging gifted students. Many students don't realize that they can sit for College Board's Advanced Placement Exams even if they are not in the applicable class; gifted students in a teacher's non-AP Physics class can learn concepts through the curriculum, extend them through OER, and potentially earn credit through the exam. Through the Saylor Foundation, students may even be able to earn college credit through their courses[43], which may dovetail nicely with the student's traditional course load, for a mutually beneficial arrangement.

NOTEWORTHY OER REPOSITORIES

While there are many OER repositories, a few are easy to use and intuitively searchable; useful in the K-12 sector; clear in the openness of their licensure; and vetted or providing some system for users to evaluate materials.

OER Commons[44]**:** Arguably the most well-known repository of the movement, ISKME's OER Commons attempts to aggregate many resources from many libraries into one, easily-searchable location. While a login is necessary to access resources, there is no cost, and one's profile can be linked to affiliated professional organizations, or "Hubs," in order to access a custom organization of content. For example, the UNESCO ICT Competency Framework for Teachers Hub directs searchers to ICT-CFT aligned resources. Resources can be evaluated according to the ACHIEVE rubric, are searchable by standards alignment, and display the Conditions of Use clearly in search results.

CK-12[45]**:** One of the strongest, most "open" repositories of OER is CK-12, who is "committed to providing free access to open-source content and technology tools that empower students as well as teachers."[46] Their commitment to openness as well as "multiple modalities of learning" ensures that teachers have a full library of resources at their fingertips that are accessible to learners with diverse needs. After creating a free account, users can curate resources to their "Dashboard" and connect with like-minded users in the "Cafe." An enormous benefit is a "Student Version," where students can access open resources, create study guides, and connect with other learners.

Openstax[47]**:** Begun by Dr. Richard Baraniuk at Rice University, Openstax makes full textbooks available online at no cost. Textbooks can be downloaded for free, and are comprised of "pages," or "learning objects"—which can include videos and other materials—that are organized into a coherent arc (a "textbook"). These textbooks are especially valuable to K-12 educators who wish to augment their science and mathematics curriculum—the collection is slim on Humanities. They also helpfully have three AP textbooks at the time of this writing: Physics, Micro-Economics, and Macro-Economics.

Share My Lesson: Powered by the American Federation of Teachers (AFT)[48], this readily searchable, Creative Commons-licensed repository has resources for all subjects and grade levels. A login is required to access

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43 "Tuition-Free College Credit Courses," *Saylor*, accessed May 16, 2017, https://www.saylor.org/earn-college-credit/.

44 "OER Commons," *OER Commons*, accessed May 17, 2017, https://www.oercommons.org/.

45 "CK-12," CK-12, accessed May 18, 2017, https://www.cK-12.org/student/.

46 "CK-12 Vision Document," *CK-12*, last modified September, 2012, https://www.cK-12info.org//about/wp-content/uploads/2012/10/cK-12-vision-document.pdf?_ga=2.187807343.63971514.1495145129-1811413037.1493224928.

47 "Openstax," *Openstax.org*, accessed May 20, 2017, https://openstax.org/.

48 "Aft: A Union of Professionals," *Aft*, accessed May 20, 2017, https://www.aft.org/.

materials, and a 5-star rating system keeps things simple, yet prevents meaningful evaluation. Searches can be narrowed by subject, grade, and even specific standards, and there are very clear instructions for submitting your own learning objects to the library. Users are given two choices of Creative Commons licenses under which they'd like their work released[49].

Open Up Resources[50]**:** This Common Core-aligned Math and English Language Arts curriculum is offered free digitally and has a low-cost print option. The nonprofit's mission is to "increase equity in education by making excellent curricula freely available to districts."

CONCLUSION

The future of OER begins and ends with educator awareness. If teachers are not aware that there are free, openly licensed resources for them to use, they will not use them, advocate for their use, or add to the OER library. Teachers can spread the word by training their peers on what exactly OER means and how their fellow teachers are likely already implementing the spirit in their classrooms; administrators can educate their staff, starting at the ground level and assuming no knowledge, allowing for those who are new to OER to feel empowered rather than alienated.

Educators have long been supplementing curriculum, creating a patch-working of objects that coalesce into a larger experience for students. A larger, openly-licensed library not only equips this practice further, but allows for educators to then share that art with the larger community, growing more students than they ever could in their own classroom. OER allows the possibility for students to both learn from and contribute to the larger global education conversation.

49 "Terms of Service," *Share My Lesson*, accessed May 20, 2017, https://sharemylesson.com/terms-of-service.
50 "Open Up Resources," *Open Up Resources*, accessed May 17, 2017, http://openupresources.org/.

References

"4th Grade Math Practice." *Khan Academy*. Accessed May 19, 2017.
    https://www.khanacademy.org/math/cc-fourth-grade-math?t=practice.

"About the Licenses." *Creative Common*s. Accessed 19 May, 2017. https://creativecommons.org/licenses/.

"About OCW." MIT *OpenCourseWare*. Accessed May 15, 2017. https://ocw.mit.edu/about/.

"Achieve OER Rubrics." *Achieve*. Accessed 16 May, 2017. https://www.achieve.org/publications/
    Achieve-oer-rubrics.

"Aft: A Union of Professionals." *Aft*. Accessed May 20, 2017. https://www.aft.org/.

"The Cape Town Open Education Declaration." *Shuttleworth Foundation*. Accessed May 17, 2017.
    http://www.capetowndeclaration.org/.

Catalano, Frank. "The Unruly Playground: Free OER and Paid Digital Materials." *EdSurge*. Last modified July 27, 2014.
    https://www.edsurge.com/news/2014-07-27-the-unruly-Playground-free-oer-and-paid-digital-materials.

"CK-12." *CK-12*. Accessed May 18, 2017. https://www.cK-12k12.org/student/.

"CK-12 Vision Document." CK-12. Last modified September, 2012. https://www.cK-12k12info.org/
    /about/wp-content/uploads/2012/10/cK-12k12-vision-document.pdf?
    ga=2.187807343.63971514.1495145129-1811413037.1493224928.

"Creative Commons license." Shaddim. Accessed May 24, 2017. https://upload.wikimedia.org/
    wikipedia/commons/e/e1/Creative_commons_license_spectrum.svg.

"Digital Millennium Copyright Act Notification Guidelines." *Khan Academy*. Accessed May 19, 2017.
    https://www.khanacademy.org/about/dmca.

"Engage NY." *Engage NY*. Accessed 22 May, 2017. https://www.engageny.org/.

"Free Digital Textbook Initiative." *California Learning Resource Network*. Accessed May 17, 2017.
    https://web.archive.org/web/20090618115547/http://www.clrn.org:80/FDTI/.

Goldstein, Sari. "Open educational resources: Where and how to get started." *Pearson*.
    Last modified April 28, 2017. http://www.pearsoned.com/education-blog/open-educational-
    resources-get-started/.

"#GoOpen District Launch Packet." *Office of Educational Technology*. Accessed May 20, 2017.
    https://tech.ed.gov/open/districts/launch/.

"#GoOpen: So You've Embraced OER? Now What?" *Ed Scoop*. Last modified November 8, 2016. http://edscoop.com/go-open-so-youve-embraced-oer-now-what.

"Guidelines for Open Educational Resources (OER) in Higher Education." *United Nations Educational, Scientific, and Cultural Organization; the Commonwealth of Learning*. 2015. http://unesdoc.unesco.org/images/0021/002136/213605E.pdf.

"Infographic: A History of Open-Educational Resources." *Course Hero*. Last modified May 31, 2012. https://www.coursehero.com/blog/2012/05/31/infographic-a-history-of-open-educational-resources/.

"IT Accessibility Checklist." *University of Washington*. Accessed 15 May, 2017. https://www.washington.edu/accessibility/checklist/.

"Khan Academy." *Khan Academy*. Accessed May 20, 2017. https://www.khanacademy.org/.

Khan, Sal. "The Idea of Division." *Khan Academy*. Accessed May 19, 2017. https://www.khanacademy.org/math/arithmetic/arith-review-multiply-divide/arith-review-division-intro/v/the-idea-of-division.

"Knovation Learning." *Knovation Learning*. Accessed May 19, 2017. http://www.knovationlearning.com/.

"Learning Registry." *Learning Registry*. Accessed May 21, 2017. http://learningregistry.org/.

"Module 5: Creative Commons Licenses." *Open Washington*. Accessed May 17, 2017. http://www.openwa.org/module-5/.

"More Information on Fair Use." *Copyright.gov*. Accessed 16 May, 2017. https://www.copyright.gov/fair-use/more-info.html.

NBC News. "Rising Textbook Prices Mirror Rising Drug Costs." Youtube video, 3:06. Posted [July 2015]. https://www.youtube.com/watch?v=De1261aMknQ.

Noonoo, Stephen. "Khan Academy Talks Analytics, Journals, and iPads." *The Journal*. Last modified April 5, 2012. https://thejournal.com/Articles/2012/04/05/Khan-Academy-Talks-Analytics-OER-and-iPads.aspx?Page=2.

"OER Case Studies." *Wiki.creativecommons.org*. Accessed May 19, 2017. https://wiki.creativecommons.org/wiki/OER_Case_Studies#Featured_OER_Case_Studies.

"OER Commons." *OER Commons*. Accessed May 17, 2017. https://www.oercommons.org/.

"OER Evaluation Tool." *OER Commons*. Accessed May 14, 2017. https://www.oercommons.org /authoring/1506-oer-evaluation-tool/view.

"Open Education." *U.S. Department of Education Office of Educational Technology*. Accessed May 15, 2017. https://tech.ed.gov/open/.

"Open Educational Resources (OER): Resource Roundup." *Edutopia*. Last modified December 4, 2015. https://www.edutopia.org/open-educational-resources-guide.

"Openstax." *Openstax.org*. Accessed May 20, 2017. https://openstax.org/.

"Open Up Resources." *Open Up Resources*. Accessed May 17, 2017. http://openupresources.org/.

"Open Washington." *Open Washington*. Accessed May 15, 2017. http://www.openwa.org/.

"TED Talks Usage Policy." *Ted.com*. Accessed 16 May, 2017. https://www.ted.com/about/ our-organization/our-policies-terms/ted-talks-usage-policy#h2--ted-talks-under-creative-commons-license.

"Terms of Service." *Share My Lesson*. Accessed May 20, 2017. https://sharemylesson.com/terms-of-service.

"Terms of Service." *YouTube*. Accessed 15 May, 2017. https://www.youtube.com/static?template=terms.

"Terms of Use." *Creative Commons*. Accessed 19 May, 2017. https://creativecommons.org/terms/.

"Tuition-Free College Credit Courses." *Saylor*. Accessed May 16, 2017. https://www.saylor.org/earn-college-credit/.

"U.S. Department of Education Launches Campaign to Encourage Schools to #GoOpen with Educational Resources." *U.S. Department of Education*. Last modified October 29, 2015. https://www.ed.gov/news/press-releases/us-department-education-launches-campaign-encourage-schools-goopen-educational-resources.

"Videos." *Open Washington*. Accessed May 18, 2017. http://www.openwa.org/category/videos/.

"What is Fair Use?" *YouTube*. Accessed 15 May, 2017. https://www.youtube.com/yt/copyright/ fair-use.html#yt-copyright-protection.

"What is OER?" *Wiki.creativecommons.org*. Accessed May 19, 2017. https://wiki.creativecommons.org/wiki/What_is_OER%3F.

Wiley, David. "The Access Compromise and the 5th R." *Lumen Learning*. Last modified March 5, 2014. https://opencontent.org/blog/archives/3221.

Wiley, David. "Iterating Toward Openness." *Lumen Learning*. Accessed May 22, 2017. https://opencontent.org/blog/.

Wiley, David. "OER-Enabled Pedagogy." *Lumen Learning*. Last modified May 2, 2017. https://opencontent.org/blog/archives/5009.

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Our mission is to help improve the practice and process of teaching and learning through effective use of promising technologies.

Stefanie Hausman, Content Manager

Stefanie is dedicated to helping educators transform classrooms into 21st century learning environments where all students and teachers can engage in relevant, meaningful, and deep learning experiences augmented by emerging technologies. Stefanie has worn many hats in the field of education and educational technology over the last 25 years ⬚ as an adult education teacher, a middle school classroom teacher, a teacher trainer, a content developer, and currently as a Content Manager for Clarity Innovations. With her experience and knack for understanding and anticipating educators' challenges, she guides her team of content developers and instructional designers through all phases of project development to produce high-quality deliverables that exceed the client's expectations.

Kailey Rhodes, Content Developer

As a former middle school teacher, Kailey is passionate about pursuing educational solutions that keep students at the forefront of their learning experience. She has taken this passion beyond the classroom to various onsite and virtual classrooms of teachers around the world, having authored and piloted various curricula and led webinars on both education technology as well as pedagogical issues such as curriculum writing and teaching grammar. Kailey has also developed customized instruction for both technical topics and pedagogical practices, articulating the "Why?" behind specific adult learning initiatives while responding in real-time to individual learning needs, styles, and proficiency levels.

CONTACT US

Write, call, email, or stop by in person, whether you're interested in:

- More information about our background and qualifications;
- A meeting to discuss a potential project;
- A brief primer on promising technologies for education; or,
- Our thoughts on a few concepts or ideas you may have.

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