

A Primer on Open Educational Resources (OER) for Psychology Instructors:

Background, Resources, and Materials

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**Introduction**

Over the past decade tuition costs at institutions of higher education have risen 63% while textbook costs have risen 88% (United States Bureau of Labor Statistics, 2006). Faculty members have no control over the cost of tuition, yet they do have control over the teaching materials used for their courses. For years students have been creative in their pursuit to cut costs by using older editions of the assigned textbook, shopping on line for used copies, sharing with other students, and in extreme measures opting to not purchase the textbook at all. After witnessing an increase among my own students in forgoing the purchase of the course textbook, I had to confront and accept the role that I was playing in creating an educational barrier for my students. I had to decide if I was going to look the other way or be active in removing this obstacle. In my own personal quest to address this barrier, I was introduced to the use of Open Educational Resources (OER).

 For the past 15 years, the use of OER has steadily grown in practice and in influence. OER include publicly available educational materials that others are free to use and modify. OER may be an entire textbook, a single book chapter, videos, test banks, software, a full course of materials, or select course materials such as a syllabus or a lecture presentation (William and Flora Hewlett Foundation, n.d.). OER are made possible through the use of open licensing that removes any monetary cost associated with the use of the materials and also grants up front a wide range of flexible permissions associated with the re-use, repurposing, and redistribution of the educational materials. OER are often defined by their ability to achieve the 5R’s: retain, reuse, revise, remix, and redistribute (Wiley, 2014). By comparison, many *free* educational materials such as those available from for-profit companies or nonprofit organizations; maintain an *all rights reserved* default copyright that vastly restricts how the materials can be utilized.

The immediate impact of OER is that they directly address the cost-prohibitive nature of college textbooks through the adoption of open textbooks. The deeper pedagogical impact of OER comes with the open licensing attached to the educational materials. Because OER can be revised, readjusted, and redistributed back into the educational community, educators and students can interact with the materials in a manner different than traditional copyrighted material. OER move educators and students out of the traditional teaching and learning roles because of the flexibility granted regarding their use and re-use. Starting with an open resource, students can re-mix, expand, and modify the material, and then return it back to the public. Rather than just being consumers of content, students can be active creators of content (Butcher, Kanwar & Uvalic-Trumbic, 2015; DeRosa & Robison, 2017). The formal integration of these practices into the teaching and learning process is referred to as open pedagogy (Wiley, 2017).

Open pedagogy as a practice moves beyond the static one-off assignments where the final student products ends up buried in faculty file cabinets never to be seen again. Within the open pedagogy philosophy, OER can be integrated as course assignments where students begin with an open resource that they then revise, edit and reproduce to again be shared for public use. For example, students in my abnormal psychology class were assigned readings on the history of our local state mental hospital and then had to review an existing wiki page on the hospital and fact check the information. As a class, we corrected information and added important content. Rather than writing a summary paper on the history of the hospital, that only I would read, the students contributed to existing public information. Open pedagogy also includes the direct creation of content for the public. Noba, an online platform that offers free and open access psychology-related textbooks and resources, sponsors a yearly competition for students to create video summaries on select psychological concepts (see http://nobaproject .com/student-video-award/winners). These videos become part of the Noba collection and are licensed for open remixing and reuse by the public. With open pedagogy, a cyclical process is enacted where the advancement of knowledge has no stopping point and students are at the center of this advancement (DeRosa & Robison, 2017).

OER and open pedagogy are part of a larger shift that is taking place among the education and research landscape that also includes the practice of open science. Open science is the belief that all processes and outcomes involved in any research study should be openly available. From data, to methodology, analysis, peer review, and final publication, all data and information is available for the public to access. The Public Library of Science (PLOS) and the Initiative for Open Citations are part of the open science movement offering open access to journal publications and citation data respectively (Initiative for Open Citations, n.d.; Public Library of Science, n.d.). The Center for Open Science (COS) offers researchers free and open source project management tools to make publicly available all steps of their research project (Center for Open Science, n.d.).

As a discipline, psychology has been a leader in modeling open science. The *Reproducibility Project: Psychology* headed by Brian Nosek at the University of Virginia utilized an early version of the COS project management tool to facilitate collaboration among 150 researchers and the replication of 100 psychological science studies (Nosek, 2017; Open Science Collaboration, 2015). Since 2014, the psychology journal *Psychological Science* has encouraged authors to utilize open science practices by awarding badges to research studies that have adhered to various open science principles. Badges are awarded for authors who produce any of the following under an open license: the research dataset, materials to replicate the study, or study design and analysis information as part of a pre-registration process (for a full listing of psychology journals awarding badges, see p. 21 of this resource).

OER offer immense pedagogical and research potential as well as immediate cost savings to students. Even with these advantages, widespread adoption of OER among higher education faculty members is still lacking. Results from Allen and Seaman’s (2014) survey found that 34.4% of higher education faculty members indicated they were *not aware* of OER and 65.9% indicated although they had heard of OER, they did not know much about it. Faculty members within the social sciences lagged behind their peers in awareness of OER. Within the social sciences only 2.4% of faculty members indicated a *high level* of awareness of OER, compared to faculty members in computer and information science (13.0%), education (6.9%) and the natural sciences (5.1%). One key objective of this primer is to increase knowledge and awareness of OER.

Among faculty members who are aware of OER, noteworthy barriers remain that prevent faculty members from further exploring or adopting OER for their own uses. Such barriers include lack of time and difficulty locating relevant and suitable materials (Allen & Seaman, 2014). Thus, the second objective of this primer is to provide a single resource specific to psychology instructors with a concise summary of appropriate search tools and resources. Ultimately, I hope that this primer will encourage more faculty members to explore and eventually adopt OER in their own courses.

# Definition and Description of OER

# Open Educational Resources

 No singular definition exists for Open Educational Resources (OER); however, the most cited definitions are those from the William and Flora Hewlett Foundation and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The William and Flora Hewlett Foundation is a nonpartisan, private charitable foundation established in 1966 that awards grants to support education, environment, global development and population, performing arts and effective philanthropy. It defines OER as

teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge (William and Flora Hewlett Foundation, n.d.).

UNESCO is a specialized agency of the United Nations with the mission of promoting peace, ending poverty, improving access to education, and promoting cross-cultural understanding (UNESCO, n.d.-a). UNESCO is often considered the “intellectual” agency of the United Nations that focuses on conducting studies, on sharing knowledge, and on setting standards. Currently the agency defines OER as “teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution” (UNESCO, n.d.-b).

Resources that comprise the OER concept include a wide variety of educational content and materials. The most frequently created and shared type of OER are that of textual content (Wiley, 2007b). Textual content includes lecture and curriculum materials in forms such as HTML, XML and PDF. Less common resources include audio content such as MP3’s, video content such as Windows Media, Real, Quicktime, and MP4, and computer-based simulation content such as Java or Flash (Commonwealth of Learning, 2015; Wiley, 2007b). More broadly, OER also include open source software, data sets, content management systems, learning management systems, and development tools, in addition to the development of OER standards and licensing tools (Geser, 2012). OER are often defined by their ability to achieve, what is referred to as, "the 5R’s": (1) Retain - the right to make, own, and control copies of the content, (2) Reuse – the right to use the content in a wide range of ways, (3) Revise – the right to adapt, modify and improve the content, (4) Remix – the right to combine the original or revised content with other open content and create something new, and (5) Redistribute – the right to share copies of the original content, your revisions, or your remixes with others (Wiley, 2014).

In summary, an open educational resource is simply an educational resource that includes an open license that allows for the free use and upfront permission to modify the resource without first requesting permission from the copyright holder. In fact, the only difference between OER and other educational materials or resources, are the open licenses attached to the materials (Butcher et al., 2015).

# Background of the OER Movement

UNESCO and the William and Flora Hewlett Foundation were both integral to the origins of the OER movement. The early contributions of these two organizations will be reviewed.

UNESCO formally introduced the concept of OER in 2002 at the Forum on the Impact of Open Courseware for Higher Education in Developing Countries (UNESCO, 2012). Participants of the forum expressed their desire to “develop together a universal educational resource for the whole of humanity, to be referred to henceforth as Open Educational Resources” (UNESCO, 2002, p. 30). During the three-day forum, working groups focused on addressing various questions related to the advancement of open courseware. The working group report put forth the first recommended definition for OER as follows: “the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes” (UNESCO, 2002, p. 24). Participants of the working group outlined this early definition of OER, but considered it at the time as a synonym for the term open courseware.

 Also in 2002, the William and Flora Hewlett Foundation developed their Education Program Strategic Plan where “using information technology to increase access to high-quality educational content” was identified as a key component to the plan (Atkins, Brown, & Hammond, 2007, p. 1). This key component was built on the recognition that the Internet now offered unprecedented opportunities in education, including equalizing the distribution of high quality educational materials to students and educators all over the world (Atkins et al., 2007). Thus began an intense focus by the foundation on funding the creation of high quality educational resources and building a communication network around the development and dissemination of openly available educational resources. Some of the most notable early projects supported by the Hewlett Foundation include the MIT OpenCourseWare Project, Rice University Connexions (now known as OpenStax CNX), and the Center for Open and Sustainable Learning at Utah State University.

The Hewlett Foundation’s initial strategic plan and the focused investment that followed are considered to be the primary stimuli that dramatically advanced OER into a modern educational movement. It is estimated that $68 million in grants was awarded between 2002 and 2007, with $43 million going directly to the creation and dissemination of open educational content (Atkins et al., 2007).

 In 2011 UNESCO and the Commonwealth of Learning released the publication, *Guidelines for Open Educational Resources (OER) in Higher Education,* which outlines a set of key issues and suggestions for integrating OER into higher education. Included in the guidelines are suggestions for governments, higher education institutions, academic staff and student bodies (current 2015 guidelines are available here:

<http://www.unesco.org/new/en/communication-and-information/resources/publications-and-communication-materials/publications/full-list/guidelines-for-open-educational-resources-oer-in-higher-education/>).

In 2012, UNESCO held the World Open Educational Resources (OER) Congress in Paris. The meeting resulted in the *2012 Paris OER Declaration*, calling upon governments around the world to foster awareness and the use of OER, develop strategies and policies on OER, encourage research on OER and openly license educational materials that are publicly funded. Also included in the declaration was an updated definition of OER as:

teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work (5, 2012, p. 1).

 Most recently the William and Flora Hewlett Foundation (2015) commissioned a 2013 study to explore the growth of OER. Study results found the movement to be near a “tipping point,” where the utilization of open educational resource content will begin to move rapidly beyond early adopters and into the mainstream (p. 3). Because of this acceleration of adoption, the foundation is focusing current efforts on (a) supporting the development and promotion of open textbooks for high enrollment postsecondary classes and (b) supporting the creation of zero textbook cost degrees within community colleges.

# Open Licensing

 Open licensing offers a standardized way to grant permission and to state restrictions regarding accessing, using, repurposing, reusing, or redistributing creative work (UNESCO, 2013). Free educational materials, such as those made available from for-profit companies or nonprofit organizations (e.g., the Digital Public Library of America, Internet Archive, and the World Digital Library); maintain an “all rights reserved” copyright. This is the copyright default that comes with restrictions on how one can use the materials; most often the restriction prevents the alteration or redistribution of the material. In contrast, OER are based on the philosophy of open access to educational resources for students and educators, where materials are openly available to use, distribute, modify and/or re-purpose. Because of this philosophy, OER do not fit well with traditional approaches to licensing and copyright permissions. Thus, embedded within the OER movement have been direct challenges and changes to traditional copyright and licensing for educational materials (Wiley, 2007a).

One of the common misconceptions regarding open licensing is that authors give up their rights to their material. In reality, an open license actually ensures that authors maintain copyright and acknowledgement for their work while also allowing for their material to be shared with the public, but with minimal restrictions. The degree of these restrictions varies from allowing others to download and share original work unaltered to allowing others to distribute, change, modify, or build upon original work (even commercially) as long as credit is given to the original authors. Authors determine the type of license and thus the level of restrictions placed on their work.

Open license options vary widely depending upon the type of resource or material one wishes to license (for a comparative guide to open content licenses, see Liang, 2004), but by far the most popular approach within the OER movement has been the Creative Commons (CC) set of licensing options (Butcher et al., 2015). Founded in 2001, CC released their first set of free licensing options to the public in 2002 (Creative Commons, n.d.-b). By 2006, 50 million pieces of content were licensed using CC and by 2015, that number had risen to 1.18 billion pieces of licensed content (William and Flora Hewlett Foundation, 2015). Most notably The Massachusetts Institute of Technology (MIT) uses CC licenses to grant open use, translation, and remix of materials for their 1,900 graduate and undergraduate courses. The Noba Collection of psychology-related chapters and full texts also have a CC license.

CC currently offers six licensing options based on a combination of two considerations: (a) the authors’ preferences for the commercial or noncommercial use of their material, and (b) the degree to which authors permit changes or modifications to the original work (Creative Commons, n.d.-a). The four licensing options of CC BY, CC BY-SA, CC BY-NC, and CC BY NC-SA adhere to the spirit of OER and the 5R’s (retain, reuse, revise, remix, and redistribute). Materials licensed under options CC BY-ND and CC BY-NC-ND are *free* to use, but are not considered OER because of the retained restrictions on altering and/or redistribution of the materials (Green, 2017). CC’s current (Version 4.0) main licensing options are as follows:

**Attribution (CC BY 4.0)** This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of the licenses offered. Recommended for maximum dissemination and use of licensed materials.

Examples: PLOS ONE and OpenStax CNX open textbooks



**Attribution-ShareAlike (CC BY-SA 4.0)** This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms. This license is often compared to “copyleft” free and open source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use. This is the license used by Wikipedia, and is recommended for materials that would benefit from incorporating content from Wikipedia and similarly licensed projects.

Examples: Wikipedia and Wikibooks



**Attribution-Non-Commercial (CC BY-NC 4.0)** This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don’t have to license their derivative works on the same terms.

Example: Images collection from the Brooklyn Museum and Wired.com photography



**Attribution-NonCommercial-ShareAlike (CC BY-NC-SA 4.0)** This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.

Examples include: Noba Chapters and MIT OpenCourseWare



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**Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND 4.0)** This license is the most restrictive of our six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can’t change them in any way or use them commercially (Creative Commons, n.d.-a).



**Related Terminology**

 The following are related and overlapping concepts with OER.

## Learning Objects

 A learning object is any entity (digital or nondigital) that may be used for educational purposes. The content may be a tutorial, an assignment, a test, a quiz, a questionnaire, an experiment (live or virtual), a simulation, or a complete online course. The format may be text, sound, video, a website, Flash content, or a graphic (Andreatos & Katsoulis, 2012). A learning object *may or may not* be licensed for use as an open educational resource.

## Massive Open Online Course (MOOC)

 A MOOC is an online course that is accessed via the web and can have unlimited enrollment. MOOCs include traditional course materials such as recorded lectures, readings and activities, as well as on-line forums to support peer to peer and instructor to student interactions. The MOOC *may or may not* have a fee associated with enrollment and the content included in a MOOC *may or may not* be licensed for use as open educational resources (Kaplan & Haenlein, 2016).

## Online Learning

 According to Moore, Dickson-Deane, and Galyen (2011, p. 130) online learning refers to “access to learning experiences via the use of some technology.” The content included in online learning *may or may not* be licensed for use as open educational resources.

## OpenCourseWare

 OpenCourseWare represents focused OER repositories where materials are organized as singular courses specific to offerings from the identified university. Faculty members affiliated with the identified university develop the course materials that are then made available for others to use. The materials accessible with each course vary and may include any of the following: syllabi, lectures notes, video lectures, test banks, assignments, exams, and study and/or lecture presentations (Baker, 2009; Open Education Consortium, n.d., para. 1). Courses made available through OpenCourseWare repositories do not necessarily utilize an open textbook as their primary textbook for the course.

## Open Data

 Open Data are data sets from completed or in-progress research projects that are made freely available and open to the public. Open Data are part of the Open Science philosophy that all processes and outcomes involved in conducting research should be transparent and openly available to the public (Nosek, 2017).

## Open Education/Open Learning

 Open Education (or Open Learning) is a philosophy of education that works to improve educational experiences by removing all unnecessary barriers to learning. Using OER supports this philosophy in that OER provide students open access to materials that are not bound by restrictive copyright laws (Butcher et al., 2015; Jensen & West, 2015).

## Open Educational Practices

 Open Educational Practices (OEP) are supportive practices outside the classroom that promote an educational environment where OER are utilized and/or created. OEP also represent methods within the classroom where the instructor and student use OER to enhance the educational experience. Students create, use, or modify OER and thus are directly involved in creating their learning environment by acting not only as the learner, but also as content producer and teacher (Conole & Ehlers, 2010).

## Open Pedagogy

 Teaching and learning practices that focus on the creation, revision, adjustment and redistribution of open educational resources back into the educational community, where other educators and students can access the materials for their own use. Classroom assignments based on open pedagogy place students as the active creators of educational content that can be integrated back into the classroom to build upon and/or be shared with the public at large (DeRosa & Robison, 2017).

## OER Repositories

## OER repositories are a collection of various open educational resources that can be searched to locate various materials by topic or subject matter. Educational institutions, individuals and/or organizations may submit resources for inclusion in the repositories. Materials in the repository may include any of the following: full university courses, mini-lessons, simulations, images, activities, and open textbooks (Butcher et al., 2015).

## Open Science

 The belief that all processes and outcomes involved in conducting research should be transparent and openly available to the public so as to promote integrity and reproducibility of scientific research (Nosek, 2017).

## Open Textbooks

 Open textbooks are a specific subset of open educational resources that are a “body of educational content that is openly available over web, by mail or in a book store with a copyright that allows copying and distribution or, with the most open copyrights, allows modifications of the content and even sale” (Community College Consortium for Open Educational Resources, n.d., para 2).

## OER Directory

 One of the primary challenges of the OER movement is the multitude of resources available to educators. There currently is no single primary destination for all things OER. The following compilation attempts to synthesize key and relevant websites, search tools, and materials specific to psychology instructors interested in OER.

**Getting Started**

1. Identify your objective.
	1. Are you curious about what is available and just want to explore?
		1. Start with one of the OER Repositories as these represent a broad collection of educational materials.
	2. Are you looking for a specific resource for a specific course (course assignment, lecture slides, syllabi, test bank, etc.)?
		1. Start with one of the OpenCourseWare websites as these are focused repositories organized around specific courses.
		2. Scan the listing of courses provided below to locate your course title or a similar/related title. Search for the course title via the identified OpenCourseWare site.
		3. If you do not see your course title (or related title), move to conducting a search through one of the OER Repositories.
	3. Are you looking to adopt an open textbook or select chapters to replace your current text?
		1. Start with one of the Open Textbooks websites.
2. Always check the license attached to the resource. Many websites, organizations and educators still conflate free and open access with OER. While all OER are free and open access, not all free and open access resources are OER. Check the license and remember the 5R’s (retain, reuse, revise, remix and redistribute).
3. Be patient. Locating the right resource can take some time.
4. Don’t expect perfection. The quality of OER varies and the resources may not exactly fit your needs or teaching style. As long as the open resource has a CC BY, CC BY-SA, CC BY-NC or CC BY-NC-SA license, you are able to make modifications and adjustments to the resource. Aim for finding a “good enough” resource that provides you with a framework to build upon and modify till you have the resource you desire.

## OER Repositories

1. Galileo Open Learning Materials - <http://oer.galileo.usg.edu/>
	1. Galileo is a repository of open learning materials submitted from across 29 institutions of higher education and is administered by the University of Georgia. Materials available include assessment tools, homework, lecture slides, courses, open textbooks, photographs/images, and video. Most materials available through this repository have a CC license.
	2. Search Tip:
		1. Start your search by either subject or material type.
2. MERLOT - <https://www.merlot.org/>
	1. MERLOT is a program of the California State University and allows users to search the MERLOT reviewed collection of over 40,000 materials categorized into 20 material types, such as assignments, case studies, open textbooks, quizzes, and tutorials. Many materials undergo a peer review process before being included in the collection. MERLOT does not store the materials that are discovered on their site; they maintain the metadata for the material and a direct link to the website where the materials are located. You can search for various educational materials by keyword, description, material type, technical format, and audience. Materials discovered via MERLOT may or may not have an open license; however, a filtered search can be used to locate only those resources and materials with a CC license.
	2. Search Tips:
		1. Select the Search button from the menu at the top of the page and Search Materials.
		2. Under Main Attributes
			1. The “Search” option lets you select the discipline (social sciences), subdiscipline (psychology) and additional subdisciplines (biological, clinical, personality, etc.).
			2. Select your audience (college general education, college lower division, college upper division).
			3. Select your material type (syllabi, case study, presentation, etc.).
		3. Under Licenses
			1. Select “yes” for Creative Commons.
			2. Select “yes” for Creative Commons Zero (CC0).
		4. Under Reviews
			1. Select “has peer reviews.”
		5. Under Date Added to MERLOT
			1. Specify dates if you are looking for current content.
3. MERLOT - Psychology Portal - <https://www.merlot.org/merlot/Psychology.htm>
	1. The Psychology Portal takes you directly to the psychology collection housed in MERLOT. The psychology collection is managed by a board that oversees the peer review process for every object submitted for inclusion in the collection. Search results can be filtered to locate only materials with a CC license.
	2. Search Tips:
		1. To stay within the Psychology Portal, locate the Materials by Discipline box on the portal main page. *Note: selecting “Search” on the top menu bar takes you back to the full MERLOT collection*.
		2. Select the discipline of interest – there are currently 16 options:
			1. APA Style and Manuscript Preparation
			2. Biological
			3. Clinical and Counseling
			4. Cognitive
			5. Community and Health
			6. Developmental
			7. Diversity
			8. Ethics
			9. General
			10. History and Systems
			11. Industrial and Organizational
			12. Learning and Memory
			13. Personality
			14. Sensation and Perception
			15. Social Psychology
			16. Statistics and Research Methods
		3. Under Materials and Other Filters, select Creative Commons
4. OER Commons - <http://www.oercommons.org>
	1. OER Commons is considered an *open repository* because it allows anyone to contribute to the catalog of OER. OER Commons provides access to search, browse, and evaluate resources within the OER Commons collections. The collection includes full university courses, mini-lessons and simulations, adaptations of existing open work, and open textbooks. Unless otherwise noted, all content on the OER Commons site is licensed under CC BY-NC-SA 4.0.
	2. Search Tips:
		1. In order to locate psychology-related materials you need to select the subject of Social Sciences, within the Advanced Search options
		2. Under Conditions of Use select No Strings Attached and Revise and Remix
5. OpenStax CNX - <http://cnx.org>
	1. The OpenStax CNX Library (formerly known as Connexions) includes a collection of learning objects (called pages), which are organized into textbook-style books from a variety of different disciplines. Although OpenStax CNX is affiliated with Rice University, authors from all over the world contribute content. Content may be available for download as PDF, EPUB and/or Offline ZIP. The materials on OpenStax CNX are licensed under CC-BY 4.0.
	2. Search Tips:
		1. Select the Advanced Search option
		2. In the dropdown menu for Subject, select Social Sciences
		3. Enter a keyword (concept, topic, person) to narrow your search.
			1. Because all learning objects are organized as either pages or books, there is no option to sort by material type.

## OpenCourseWare

1. JHSPH Open - <http://ocw.jhsph.edu>
	1. Johns Hopkins School of Public Health OpenCourseWare site offers materials from courses across the 10 academic departments that make up the school of public health. Included in this collection are lecture materials, schedules, assignments, projects, and images, all developed by JHSPH faculty. JHSPH OpenCourseWare material is licensed under CC BY-NC-SA 3.0.
	2. Relevant courses (and related materials) currently available:
		1. Introduction to Mental Health and Disaster Preparedness
		2. Issues in Mental Health Research in Developing Countries
		3. Psychiatric Epidemiology
		4. Social and Behavioral Aspects of Public Health
		5. Statistics for Psychosocial Research: Structural Models
		6. Statistics in Psychosocial Research: Measurement
2. MIT OpenCourseWare - <http://ocw.mit.edu>
	1. MIT OpenCourseWare is a web-based publication of nearly all course content of approximately 2,340 different courses offered at the Massachusetts Institute of Technology (MIT). The availability of materials varies by course and may include any or all of the following: course syllabi, lecture notes, assignments, projects, exams, images, problem and solution sets, labs, projects, hyper-textbooks, simulations, tools, tutorials, and video lectures. MIT OpenCourseWare material is licensed under CC BY-NC-SA 4.0.
	2. Relevant courses (and related materials) currently available:
		1. A Clinical Approach to the Human Brain
		2. Affect: Neurobiological, Psychological and Sociocultural Counterparts of “Feelings”
		3. Animal Behavior
		4. Brain Structure and Its Origins
		5. Cellular Neurobiology
		6. Cognitive and Behavioral Genetics
		7. Cognitive Neuroscience
		8. Cognitive Neuroscience of Remembering: Creating and Controlling Memory
		9. Cognitive Processes
		10. Language and Mind
		11. Language Acquisition
		12. Learning and Memory: Activity-Controlled Gene Expression in the Nervous System
		13. Biological Basis of Learning and Memory
		14. Fine-Tuning the Synapse: Synaptic Functions and Dysfunction
		15. Foundations of Cognition
		16. Infant and Early Childhood Cognition
		17. Introduction to Psychology
		18. Investigating the Neural Substrates of Remote Memory using fMRI
		19. Minds and Machines
		20. Moral Psychology
		21. Neuroscience and Behavior
		22. Neural Basis of Learning and Memory
		23. Philosophical Issues in Brain Science
		24. Psycholinguistics
		25. Psychology of Gender
		26. Sensation and Perception
		27. Statistical Methods in Brain and Cognitive Science
		28. The Art and Science of Happiness
		29. The Human Intelligence Enterprise
		30. The Nature of Creativity
		31. The Society of Mind
3. Open Course Library – <http://opencourselibrary.org>
	1. The Open Course Library includes a collection of sharable course materials, including syllabi, course activities, readings, and assessment tools from select courses of the Washington State College system. Materials are stored on Google Drive for easy download. The resources on Open Course Library are available under the CC-BY 3.0 license, unless otherwise noted.
	2. Relevant courses (and related materials) currently available:
		1. General Psychology
		2. Lifespan Psychology
4. Open Michigan – <http://open.umich.edu>
	1. The Open Michigan OER collection includes teaching and learning resources by University of Michigan faculty, staff, and partner institutions. Available resources include assignments, articles, artistic works, lecture presentations, syllabi, and learning objects organized by particular courses. Also available on this site is open data (publicly available, free to use, reuse, and redistribute). Unless otherwise noted, all content on the site is licensed under CC BY 4.0.
	2. Relevant courses (and related materials) currently available:
		1. Introduction to Statistics and Data Analysis
5. Open Yale Courses – <http://oyc.yale.edu>
	1. The Open Yale courses website provides lectures and other course materials (e.g., syllabi, lecture transcripts, video lectures, and presentations in PowerPoint®) from selected Yale College courses. Lectures are available as downloadable videos. Most lectures and course materials on the Open Yale site are licensed under CC BY-NC-SA 3.0.
	2. Relevant courses (and related materials) currently available:
		1. Introduction to Psychology
		2. The Psychology, Biology and Politics of Food
6. Tufts OpenCourseWare – <http://ocw.tufts.edu/>
	1. Tufts OpenCourseWare site offers educational material from some Tufts University courses. Available course content includes course descriptions, syllabi, lecture notes, and assignments. Tufts OpenCourseWare material is licensed under CC BY-NC-SA 3.0.
	2. Relevant courses (and related materials) currently available:
		1. Human Growth and Development
		2. Intellectual Development
7. UCI Open - <http://ocw.uci.edu/>
	1. UCI Open offers educational materials from several University of California Irvine courses. Available course content includes course descriptions, syllabi, practice quizzes, presentations in PowerPoint, readings, assignments and videotaped lectures. Unless otherwise noted, UCI OpenCourseWare material is licensed under CC BY-SA 4.0.
	2. Relevant courses (and related materials) currently available:
		1. Cognition & Learning in Educational Settings
	3. Relevant video lectures currently available:
		1. Psych Fundamentals
		2. Psychology & Behavior
8. UMass – Boston OpenCourseWare – <http://ocw.umb.edu>
	1. UMass Boston OpenCourseWare site offers educational material from University of Massachusetts-Boston courses. Available course content includes course descriptions, syllabi, lecture notes, presentations in PowerPoint, and assignments. UMass Boston OpenCourseWare material is licensed under CC BY-NC-SA 3.0.
	2. Relevant courses (and related materials) currently available:
		1. Social Attitudes and Public Opinion
		2. Statistics
9. Utah State OpenCourseWare – <http://ocw.usu.edu>
	1. Utah State OpenCourseWare provides a collection of educational materials that are used in the formal campus courses offered by Utah State University. The educational materials available through Utah State OpenCourseWare are licensed under CC BY-NC-SA 2.0.
	2. Relevant courses (and related materials) currently available:
		1. Literature Reviews

## Open Science

1. Center for Open Science (COS) – <http://cos.io/>
	1. The COS offers researchers free and open source project management tools to make publicly available all steps of their research project.
2. Directory of Open Access Journals – <http://doaj.org>
	1. A community-curated online directory that indexes and provides access to high quality, open access, peer-reviewed journals. Open access journals are defined as journals that do not charge readers or their institutions for access.
3. Journal of Open Psychology Data (JOPD) - <http://openpsychologydata.metajnl.com/>
	1. JOPD publishes peer-reviewed papers that provide descriptions of a dataset (methods, structure, and potential for reuse) relevant to the field of psychology and where to locate the dataset. Research results are not included in these publications. Only papers that make their datasets freely available under an open license in a public repository are accepted. The aim is to educate others about psychological data that is available for scientific and educational purposes.
4. Open Stats Lab - <https://sites.trinity.edu/osl/about-osl>
	1. Open Stats Lab is a website that utilizes open data sets organized into teaching

 activities relevant to introductory statistics. Six activity/labs are

 available that guide students through the reproduction of the results as reported

 in the original paper: correlation, regression, *t* test, one-way ANOVA,

 factorial ANOVA, and descriptive statistics. The data sets utilized on this

 website are openly licensed; however, the teaching activities retain the “all

 rights reserved” copyright and may only be used for noncommercial

 educational purposes.

1. PsyArXiv – <https://osf.io/preprints/psyarxiv>
	1. PsyArXiv is a free preprint service through the Center for Open Science specific to the subjects of engineering, life sciences, and social and behavioral sciences. Currently over 500 articles are available under social and behavioral sciences. Licensing of the preprints varies but many are licensed as CC-BY. All preprints under PsyArXiv are also indexed in Google Scholar.
2. Public Library of Science (PLOS) – <http://plos.org>
	1. PLOS is one of the world’s largest publishers of open access journals. All content published across its seven scientific journals are licensed under CC-BY 4.0.
3. Scientific Journals Adopting Badges to Promote Open Science
	1. Clinical Psychological Science
	2. Clinical Diversity & Ethnic Minority Psychology
	3. European Journal of Personality
	4. Journal of Experimental and Social Psychology
	5. Journal of Social Psychology
	6. Journal of Research in Personality
	7. Psi Chi Journal of Psychological Research
	8. Psychological Science
	9. Social Psychology
4. U.S. Government Open Data – <http://www.data.gov>
	1. The U.S. General Services Administration manages Data.gov and all data displayed on the site adhere to a set of standardized fields (title, description, tags, last update, publisher, etc.). All U.S. federal data on the site is available free and without restrictions. Consult the “Access and Use” section on the data set page for nonfederal data to determine usage rights.
	2. Data sets of interest include the topics of health, public safety, education, science and research.

## Open Textbooks

1. BC Open Textbook Project – <http://open.bccampus.ca>
	1. The Open Textbook Project is Canada’s first government-funded open textbook project. Textbooks are created by British Columbia postsecondary faculty, are reviewed by BC faculty, and are licensed under CC BY-NC-SA 4.0.
	2. Relevant Titles:
		1. *Introduction to Psychology*
		2. *Research Methods in Psychology*
		3. *Principles of Social Psychology – 1st International Edition*

1. Galileo - Open Textbooks - <http://oer.galileo.usg.edu/material-textbook/>
	1. Galileo is a repository of open learning materials submitted from 29 institutions of higher education and is administered by the University of Georgia. The repository includes a section specific to open textbooks. Most materials available through this repository have a CC license.
	2. Relevant Titles:
		1. *General Psychology: An Introduction*
		2. *Educational Learning Theories*
2. Noba – <http://nobaproject.com>
	1. Noba is a nonprofit organization founded by Drs. Ed and Carol Diener that provide flexibly structured psychology textbooks and educational materials licensed under CC BY-NC-SA 4.0. Individual modules (chapters) may be used individually or pulled together to create a custom textbook. Ready-made textbooks are also available along with instructor resources (instructor manual, test bank, teaching topic essays, and lecture presentations).
	2. Currently available ready-made textbooks:
		1. *Together: The Science of Social Psychology*
		2. *Discover Psychology 2.0 – A Brief Introductory Text*
		3. *Introduction to Psychology: The Full Noba Collection*
3. OpenStax CNX – <http://openstax.org>
	1. This is the website for OpenStax CNX where entire open access textbooks are accessible, along with instructor resources (instructor guide, test bank, slides and instructor solution guide). To access, the instructor must create a verified account. OpenStax CNX is affiliated with Rice University, and textbooks are available under the CC-BY 4.0 license.
	2. Relevant Titles:
		1. *Psychology: OpenStax (Introduction to Psychology)*
		2. *Educational Psychology*
		3. *The Psychology of Emotions, Feelings and Thoughts*
		4. *Personality Theory in a Cultural Context*
		5. *Introductory Statistics*
4. Open Textbook Library - <http://open.umn.edu/opentextbooks/>
	1. An initiative of the Center for Open Education at the University of Minnesota, the Open Textbook Library hosts a collection of textbooks that have an open license, are available in a portable file (e.g., PDF) and are in use at multiple higher education institutions or affiliated with a higher education institution, scholarly society, or professional organization. Included are reviews of the textbooks by faculty members from member institutions of the Open Textbook Network
	2. Relevant Titles:
		1. *Introduction to Psychology*
		2. *Mind, Body, World: Foundations of Cognitive Science*
		3. *Principles of Social Psychology*
		4. *Research Methods in Psychology*
		5. *Social Science Research: Principles, Methods and Practice*
		6. *Educational Psychology*
5. Wikibooks – <http://en.wikibooks.org/wiki/Main_Page>
	1. Wikibooks is a sister project to Wikipedia that includes an open content textbook collection. Wikibooks are licensed under CC BY-SA 3.0.
	2. Relevant completed Wikibooks (in progress books not included):
		1. *Cognitive Psychology and* *Cognitive Neuroscience*
		2. *Consciousness Studies*
		3. *Contemporary Educational Psychology*
		4. *Lucid Dreaming*
		5. *Relationships* (including: the science of relationships, relationships across various life stages, advice for finding a relationship and dealing with conflict, and how personality types influence relationships)
		6. *Contemporary Educational Psychology*

## Additional OER Search Options

1. Google Advanced Search - <http://www.google.com/advanced_search>
	1. Under the Advanced Search feature is the option to search by “usage rights,” which allows the user to search for pages or materials that are “free to use, share or modify, even commercially.”

## OER Creation and Development Tools

1. MERLOT – <https://www.merlot.org>
	1. MERLOT includes the option to contribute already created materials to the MERLOT collection. To contribute materials to the site, you must be a member of the MERLOT community. In addition, MERLOT offers a free web page and website development tool for members to create content. The content builder feature includes templates for lesson plans, online courses, presentations, and e-portfolio structures.
2. OER Commons - <http://www.oercommons.org/authoring-overview>
	1. OER Commons allows individuals or groups to create Open Educational Resources such as lesson plans and courses using the OER Commons publishing tools.
3. OpenStax CNX – <http://cnx.org>
	1. To become an author of content for OpenStax CNX, contact OpenStax CNX directly at cnx@cnx.org
4. Open Learning Initiative (OLI) – <http://oli.cmu.edu>
	1. The Open Learning Initiative is hosted by Carnegie Mellon University and offers a platform that instructors can use to create an open course hosted by the OLI. Instructors may build upon existing course content to customize their course. The OLI does not grant credit for the completion of any course. All course content is licensed under CC-BY-NC-SA 3.0.
	2. Currently available OLI course:
		1. Introduction to Psychology
5. Pressbooks – <http://pressbooks.com>
	1. Pressbooks offers book production software that allows books to be created and published in a variety of formats (e.g., MOBI for Kindle ebooks, EPUB, and PDF). A free version places a Pressbooks watermark on all pages. Upgrades remove the watermark and offer additional features. Books created via Pressbooks are not automatically OER; authors of books must take the step to apply an open license to their works.
6. Ubiquity Press – <http://www.ubiquitypress.com>
	1. Ubiquity Press publishes peer reviewed academic journals and books that are all licensed under CC BY. The author’s institution or funder is expected to cover the costs associated with publication.
7. Wikibooks – <http://en.wikibooks.org>
	1. Anyone can edit an existing Wikibook or create a new Wikibook. Wikibooks are licensed under CC BY-SA 3.0.
8. WikiEducator - <http://wikieducator.org>
	1. OER content can be created for WikiEducator by entering the content onto a WikiEducator page (note: this requires some knowledge of HTML coding). All content created on WikiEducator is licensed as CC-BY-SA 3.0 unless otherwise noted.

## OER Consortia

1. Community College Consortium for Open Educational Resources (CCCOER) – <http://www.cccoer.org>
	1. A group of over 250 colleges that promote awareness of Open Educational Resources as well as help colleges identify, create, or repurpose existing OER to improve teaching and learning. CCCOER is part of the global Open Education Consortium.
2. Open Education Consortium – <http://oeconsortium.org>
	1. A nonprofit network of educational institutions, individuals, and organizations that support an approach to education based on openness, including collaboration, innovation, and collective development and use of open educational materials.

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## Other OER of Interest

1. Flickr - <https://www.flickr.com/creativecommons/>
	1. An online photo management and sharing application. Users can search through content under each type of Creative Commons license.
2. Jamendo – <http://www.jamendo.com>
	1. A music website that allows artists the opportunity to publish their music under Creative Commons licenses. Users can listen to MP3 encoded audio files and download MP3 and Ogg Vorbis formats.
3. Kristoffer Magnussons Blog - <http://rpsychologist.com/>
	1. Magnusson’s blog addresses statistics, open science and data visualization. All information on the blog (unless otherwise noted) is licensed under CC BY 4.0.
4. Khan Academy – <http://khanacademy.org>
	1. Khan Academy provides videos and learning materials on topics including math, science, history, and literature. The videos, which show drawings on an electronic blackboard, resemble the style of a teacher lecturing. The narrator describes each drawing and how it relates to the material being taught. Videos are licensed under CC BY-NC-SA 3.0 and are hosted on YouTube.
5. The Brain from Top to Bottom - <http://thebrain.mcgill.ca/index.php>
	1. The Brain from Top to Bottom is a webpage created by Bruno Dubuc that

includes information and images on the topics of brain development, senses,

memory, emotions, language, sleep and dreaming, and consciousness. All information on the site is categorized into three learning levels (beginner, intermediate, and advanced). The website adopts the copyleft method that provides free access to the information on the site and encourages others to reproduce and modify the work under the same premise. Copyleft is similar to the CC BY-SA license.

**Concluding Remarks**

 As educators we want the best for our students. We want them to have the materials and resources they need to be successful. When we can remove a barrier, while maintaining quality and rigor in our course, we all win. As the price of college textbooks continues to rise and faculty members struggle to make their courses accessible for everyone, the OER movement is finding an eager audience. My first semester using an open textbook, students saved $9,752.00 (compared to the new textbook price). Student feedback on the text was positive and appreciative. After my third semester, savings had accumulated to $42,400.00. This number is hard to ignore, and my administration and colleagues began to take notice. A recent survey conducted at my institution found that 57% of faculty members expressed an interest in adopting an open textbook and 39% expressed an interest in creating or co-creating an open textbook. An OER committee has now been created at my college and I am co-teaching a summer workshop on OER to faculty members at my institution. Open textbooks are just one part of this dynamic movement that is changing how educators approach teaching and learning. National OER conferences, academic writings on OER, and universities establishing librarian positions dedicated to OER, illustrate how OER are moving mainstream. This primer is a small attempt to influence and grow the OER movement particularly among psychology faculty members. I hope that you find this primer useful, I hope that it inspires you, and I hope that will join me on this journey.

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