WHAT ARE OER?

The William and Flora Hewlett Foundation (http://hewlett.org/) says:

"OER are 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."

OER include **textbooks**. But also **software**, **videos**, **test banks**, *etc.* They are **free**, in that their cost is \$0. They are also open to **re-purposing by others**, in that they may be **modified**, **customized**, **excerpted**, **mixed with other works**, *etc.*
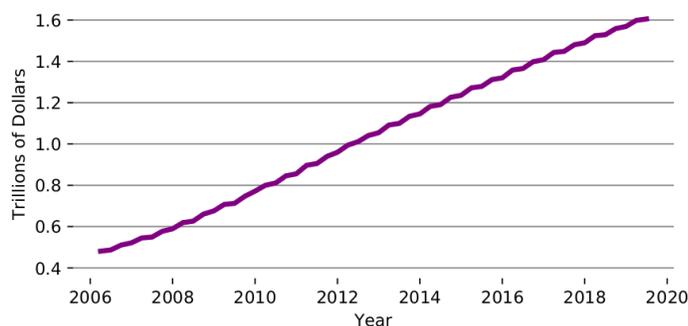
WHY USE OER?

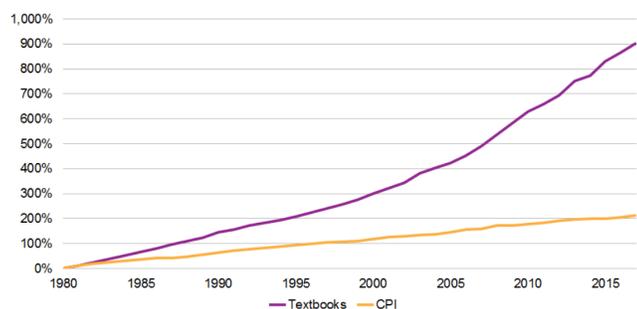***Reason 1: Student Economic Issues***. Some graphs:
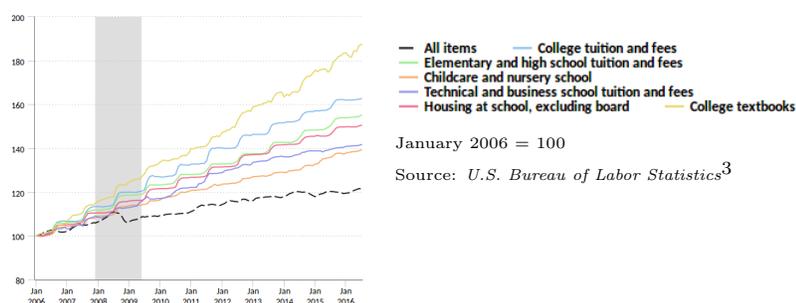
Funding Sources For Colorado Higher Ed[1]
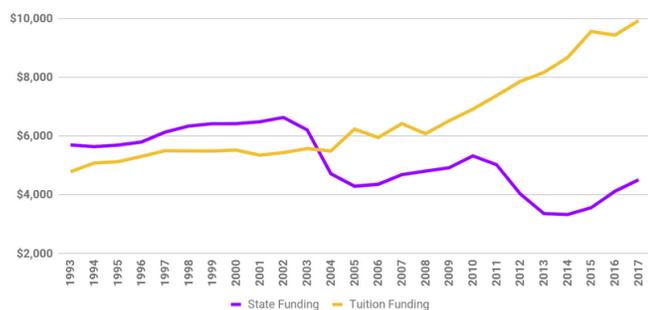
Total Student Debt in the U.S.[2]

Increase of Textbook Costs and CPI Since 1980[3]

Relative Costs of Education-related Items, 2006-16

January 2006 = 100

Source: *U.S. Bureau of Labor Statistics*[3]

This has real consequences for students in higher education in the US, of whom[4]:

- **45% were food insecure at some time in the past month**
- **56% were housing insecure at some time in the past year**
- **17% were homeless at some time in the previous year**

Moral: **Students today are under enormous economic pressures and a major contributor is textbook cost. The best textbook in the world is worthless to students who cannot afford to buy it.**

Reason 2: More Academic Freedom. The freedom to **customize**, **modify**, **excerpt**, **remix**, and **re-purpose** OER gives faculty enormous control of their pedagogy. Only an instructor using an OER may

- reorder sections of their text as they desire,
- remove pesky typos, examples that confuse more than illuminate, distracting side panels, *etc.*,
- add that perfect example/diagram/story which before they were only able to share out loud in person,
- change homework assignments in the text because the solutions are in wide circulation or they have thought of more interesting ones,
- combine large sections of several different works in a way that *fair use* might not allow,
- only change the course resources and syllabus when and how they want, not at the whim of a publisher releasing a new edition of some textbook,
- share back to the global scholarly commons any changes and improvements they may have made to an OER, building their academic reputation,
- involve students in the creation and/or curation of the resources used in class, and
- adapt course materials to a particular place, culture, language, or historical moment.

None of the above are possible with traditional textbooks/educational resources under all-rights-reserved copyrights!

Moral: **Instructors have real academic freedom in the classroom *only* when using OER.**

[1] State Higher Education Executive Officers Association, https://www.sheeo.org
[2] U.S. Federal Reserve, https://www.federalreserve.gov/releases/g19/HIST/default.htm
[3] U.S. Bureau of Labor Statistics, https://www.bls.gov
[4] *College and University Basic Needs Insecurity: A National #RealCollege Survey Report*, https://hope4college.com

Reason 3: Increased academic success and equity. A meta-analysis of OER research[5] found that switching to OER usually increases student and faculty satisfaction with their educational resources. More important, overall student academic success typically increases and DFW rates decrease when OER are used; in fact, the increase in student success is quite a bit larger among traditionally under-represented groups of students. Another study[6] found that *"Students assigned open textbooks were almost twice as likely to report using their textbooks, they used them more frequently, and for more time per week overall. Students assigned open textbooks also perceived a greater degree of overlap between the textbook, lecture, and quiz material than did students assigned traditional textbooks."*

Moral: **OER are pedagogically effective, and can help reduce the achievement gap for traditionally underrepresented groups.**

WHERE CAN YOU FIND OER?

There is a robust ecosystem of OER for a wide range of disciplines and pedagogical uses, but it is harder to find desired OER than it is to take a call from a publisher's rep in the highly concentrated commercial textbook industry. Look in

large repositories:
- The **Open Textbook Library**, https://open.umn.edu/opentextbooks/: a curated list of around 650 high quality texts, many with detailed peer reviews
- **OpenStax**, https://openstax.org/: a collection of texts that are so beautiful and similar to the kinds of things commercial publishers offer (except they're OER!) that they're used on hundreds of campuses

search sites:
- MERLOT (https://www.merlot.org/merlot/index.htm) and OER Commons (https://www.oercommons.org/).
- The search consolidator OASIS (https://oasis.geneseo.edu/).

and also:
- Many high quality resources are in small repositories, in discipline-specific collections, and even on personal pages. You can ask for a particular resource on several OER `listserv`s.
- It pays to ask your librarians: they have amazing search super-powers.

WHO IS INVOLVED IN OER WORK, IN COLORADO AND ELSEWHERE?

The CDHE supports OER-related activities in Colorado including a grant program, an annual OER conference, webinars by experts on topics of interest to the open education community, a program to train and support **Open Education Ambassadors**, *etc.*, under the aegis of a law HB18-1331 https://www.leg.colorado.gov/bills/hb18-1331. CDHE OER work is advised by a state **OER Council** with members from a variety of roles – faculty, librarians, administration, technologists, *etc.* – in public institutions of higher education around the state as well as representatives from government. For more info, see https://masterplan.highered.colorado.gov/oer-in-colorado/ .

The OER grant program administered by the CDHE and OER Council disbursed around half a million dollars in its first year to teams at public institutions of higher education around the state. Already in the report from partway through this first year of grant-supported activities, awardees reported a total of more than $3.4 million in aggregate savings to students in Colorado; see the report *Transforming Education Practices through Open Educational Resources* https://highered.colorado.gov/Publications/Reports/Legislative/OER/OER_Report_2019_Final.pdf for details. This is an already more than six-fold return on investment for dollars invested in OER.

The second year of the grant program will disburse approximately $1 million dollars for similar grants to public institutions of higher education in the state. Additionally, the CDHE and OER Council are laying the groundwork for a future rich with OER in Colorado by Building Structure (supporting OER activities), Building Culture (around the use of OER), and Building Evidence (of the impact of OER and of the best ways to build and deploy OER in Colorado).

HOW CAN YOU ADOPT, ADAPT, AND CREATE OER?

The "re-purposing by others" aspect of OER, described by David Wiley[7] as **the 5Rs** – the abilities to **Retain**, **Reuse**, **Revise**, **Remix**, and **Redistribute** – are guaranteed by **Creative Commons Licenses**[8] (one is at the bottom of the other page of this document). OER users should look for such statements and apply them to their own works.

OER are often used as ebooks (zero distribution cost!), but can also be purchased in physical form (*e.g.*, OpenStax books and various OER from print-on-demand services) at minimal cost.

Some OER exist inside open platforms like **LibreTexts** (`https://libretexts.org/`) and the publishing platform **PressBooks**. It is fairly straightforward to copy existing PressBooks OER (there are many: it is very widely used in the OER world) to a local instance, where they can be preserved unchanged or easily adapted to a particular instructor's purposes.

OER software includes physics simulations, programming environments, statistics software, and on-line homework systems. Some are hosted elsewhere and are free or of very low cost; others, such as the OER WeBWorK online mathematics homework system, might need to be hosted locally.

[5] see Hilton, John. "Open educational resources, student efficacy, and user perceptions: a synthesis of research published between 2015 and 2018." Educational Technology Research and Development (2019): 1-24, and

[6] Cuttler, Carrie. "Students' Use and Perceptions of the Relevance and Quality of Open Textbooks Compared to Traditional Textbooks in Online and Traditional Classroom Environments." Psychology Learning & Teaching, vol. 18, no. 1, Mar. 2019, pp. 6583, doi:10.1177/1475725718811300.

[7] *5Rs of Open*, http://opencontent.org/definition/

[8] for much more information, see *Creative Commons Cheat Sheet for University Faculty*, https://poritz.net/j/share/CCcheat.pdf