Scenario

Mark is a professor at the University of Central Florida. For years he has assigned the latest edition textbooks in his syllabus, but he has noticed that in recent years, many students do not have textbooks. Students have told him the books are so expensive that they can't afford to buy them. As a result, Mark has decided to do something different this semester: He's chosen to use a free and open source textbook.

To get the textbook, he accesses a free learning repository site which has many free articles, images, and learning activities that have been created by other professors. He spends many hours vetting the materials, adding his own instructional materials, and packaging them together into a digital book. When he is satisfied that this book will be a good replacement for his previously used printed textbooks, he "publishes" the ebook.

On their first day of class, students are given access to this ebook for free. Throughout the course, Mark requests feedback from students on their experiences with the book. The majority of the students like it better because they can conveniently access the material on their phones and tablets in addition to their home computers. Mark is also pleased to see on one survey that all the students in the class had accessed the book. Students reported that they liked the convenience and ability to digitally bookmark or highlight certain parts of the book. They liked the helpful videos and images included.

After his first semester of using the free and open source ebook, Mark decides that he needs to add a few more relevant articles and remove a few activities which students labeled as unhelpful. When he goes to the learning repository website to access his original ebook, he notices that someone else had created an alternate version to use. He opens up their version of the book, and sees that they added original content which he really liked and removed the same learning activities that his students didn't like. He likes what the author did, so he decides to start with those edits and add his own for his next class; this saves him quite a bit of time. In the end, Mark thinks that the book he put together was better quality and much more interesting than the expensive printed textbook he used to assign. Overall, he feels that the open source textbook was a resounding success and he will continue to use it in his future classes.

What is it?

Open source textbooks are a free or inexpensive web-based alternative to the traditional printed textbook. Open source books have an open copyright license, the Creative Commons license, which allows users to easily access and share learning objects. Like open-source software, the open-source textbook involves contributors creating a final textbook or learning resource which can then be widely used by educators and students alike. Contributors are volunteers who receive no financial reward from their work. The open-source textbook is an ever evolving product which can be continually expanded, edited and reorganized. In order for the textbook to have a cohesive style, there is usually an editor or administrator to curate other contributors' work and choose whether or not to include it in the book. Some open source books are created by individual authors who select learning objects from a repository. Open-source textbook can be published as an ebook for download or print. Many open-source textbooks also include a variety of additional activities such as interactive games and videos. These textbooks are a new technology that can be used as an educational tool at all institutional levels.

Who is doing it?

Free and open source textbooks are used by educators and students at any educational level. Most of the research conducted on this new technology has concerned the use of open source textbooks in the post-secondary classroom. Professors are increasingly finding that students who use free, open-source textbooks as opposed to using traditional printed textbooks become more engaged in learning (Liu 2011.) Universities are discovering that the cost of printed textbooks is prohibitive and many students are opting for unvetted online resources instead of purchasing the textbook (Fischer 2015). As a result of this trend, colleges and universities are now considering the idea of creating open-source textbooks for widespread use. Although the majority of research has focused on post-secondary education, primary and secondary school teachers are also finding open online educational resources helpful. Using interactive online texts allows students to enjoy engaging reading activities while learning the material.

How does it work?

Free and open sourced textbooks and resources were initiated by textbook authors who wanted to permit their students and other educators access to educational materials without the burden of inflated prices and restricted copyright. Book publishers and distributors were cognizant of the new trends in textbooks, and as a result, have

launched startups that can provide an "all access" type of ebook creation platform. Users can create content and update their books in real time. On some online platforms, such as Connexions, new material goes into a learning repository which can be repurposed by other authors. The open book innovation provides benefits for authors, publishers and students by saving time and expense due to the elimination of traditional publishing costs. Additionally, open source books are more adaptable to multiple types of users as well as accessible on multiple devices. Now free textbooks and open source resources increase access for many around the world. As more educators support the Open Educational Resource movement (OER) with their contributions to open source platforms, the quantity and quality of highly adaptable content improves.

Why is it signficant?

Open-source textbooks are a new technological resource that could potentially revolutionize how students and educators interact with new knowledge. A common complaint by students is that textbooks are uninteresting or too long with unnecessary rhetoric; open-source textbooks remedy to this complaint. They have the ability to incorporate different interactive multimedia tools such as games, video, or audio clips to keep the learner engaged and prevent learning from getting too regimented. These textbooks allow students to become an active participant in their education by being able to add and comment about their individual ideas and experiences. Students are more willing participate in activities when there is a direct purpose or objective. Another significant effect of free and open-source textbooks is on the cost of post-secondary education. Many students opt out of purchasing books due to the high cost. The use of open source textbooks lowers the cost of higher education and makes college more accessible to lower and middle class students. Furthermore, public k-12 schools' cost per pupil would drop significantly if they adopt this model. Free and open-source textbooks can really change the educational landscape by making education available to all, no matter their socioeconomic status.

What are the downsides?

In order for free and open source textbooks to exist and flourish, many authors need to contribute to the learning repository, reuse, and reorganize the learning objects. One of the the biggest benefits of the open source aspect of the textbooks the way it can foster innovation through collaboration and reuse. However, the problem is that instead of being used for collaboration, learning repositories may simply be storage units for individual authors who never actually use or view other authors' learning objects. As a result, the creativity and innovation that would normally be expected from such a collaborative venture as assembling an ebook could be diminished.

Another problem is adoption. It takes time and expertise for authors to create and continually revise an open source textbook, and currently there is little to no financial incentive in most learning institutions for instructors to spend their time doing this. Instead, it is much easier for them to ask school districts or students to pay for traditional textbooks. Finally, the credibility and quality of the learning objects in the repository could be questionable in the same way that content on other open source ventures such as Wikipedia is.

Where is it going?

There is a push for more research in the field of free and open source textbooks. Student and educator support for open sourced textbooks is steadily increasing. Accessibility to open sourced educational resources is spreading and online book publishers are creating more platforms for authors to advertise their books to students looking for affordable or free textbooks. There is hope that as the OER movement catches on, universities will find a new model that will incentivize the instructor adoption of free textbooks by providing a small financial renumeration for the professors that update and curate content. As the field of education continues to move towards more collaborative online and blended learning environments, more authors of ebooks are able to enhance their books with the help of others while implementing feedback from learners. It is likely that OER content will improve in technological sophistication and quality as it becomes more widespread.

What are the implications for teaching and learning?

Open textbooks affect the way learners interact with new knowledge and how teachers teach. Since the books can be published online and include various multimedia tools, students can work more independently than ever before while receiving automated feedback through applications embedded into the ebook. Open source books are adaptable to all learning contexts, but are especially beneficial for online or blended learning classes. While traditional mass produced textbooks were a one size fits all assistant to an instructor tasked with aligning instruction to locally defined objectives, open source textbooks are customizable to each learning context. This means that textbooks can be tailored for increased differentiated instruction and learning preferences. These open source books allow for greater ease of instruction in a flipped classroom model. Now instead of lecturing, presentation and review of materials can be accomplished through the interactive open source content. The instructor's main role becomes as a coach or a guide who helps students work through the textbook and as an instructional designer who is always finding ways to improve textbook and the learning experience throughout the course.

Free and open source text books

References

Arcos, B. D., Farrow, R., Mcandrew, P., Perryman, L., Pitt, R., & Weller, M. (2015). Impact of oer use on teaching and learning: Data from oer research hub (2013-2014). *British Journal of Educational Technology, 46*(5), 972-976. doi:10.1111/bjet.12310

Bergmann, S. (2014). Open source textbooks: A paradigm derived from open source software. *Publishing Research Quarterly, 30*(1), 1-10. doi:10.1007/s12109-014-9346-7

Feldstein, A., Martin, M., Hudson, A., Warren, K., Hilton, J. I., & Wiley, D. (2012). Open textbooks and increased student access and outcomes. *European Journal Of Open, Distance And E-Learning, 2*, 1-9. Retrieved from http://www.eurodl.org/

Fischer, L., Hilton, J., Robinson, T. J., & Wiley, D. A. (2015). A multi-institutional study of the impact of open textbook adoption on the learning outcomes of post-secondary students. *Journal of Computing in Higher Education, 3*(27), 159-172. doi: 10.1007/s12528-015-9101-x

Keep, R., Jimes, C., & Weiss, S. (2013). Addressing the local localization: a case study of open textbook adoption by three south african teachers. J*ournal of Asynchronous Learning Networks, 17*(2), 73-86. Retrieved from http://olj.onlinelearningconsortium.org/index.php/olj/index

Lindshield, B. L., & Adhikari, K. (2013). Campus and online U.S. college students' attitudes toward an open educational resource course fee: A pilot study. *International Journal Of Higher Education, 2*(4), 42-51. Doi:10.5430/ijhe.v2n4p42

Liu, H. (2011). What do the college millennial learners say about an open source digital textbook for a teacher education course. *Journal Of Technological Integration In The Classroom, 3*(1), 17-21. Retrieved http://www.joti.us/

"Open Textbooks." Student PIRGs. N.p., 2012. Web. 23 July 2016.

Prasad, D., & Usagawa, T. (2014). Towards development of oer derived custom-built open textbooks: A baseline survey of university teachers at the university of the south pacific. *International Review of Research in Open and Distance Learning, 15*(4), 226-247. Retrieved from http://www.irrodl.org/

Rodriguez-Solano, C., Sánchez-Alonso, S., & Sicilia, M. (2015). Creation of reusable open textbooks: Insights from the Connexions repository. *British Journal Of Educational Technology, 46*(6), 1223-1235. doi:10.1111/bjet.12196