



Canadian Association of  
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Association des bibliothèques  
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## **Open textbooks: opportunities for research libraries**

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## Introduction

Digital open textbooks offer distinct advantages over traditional commercial textbooks. Use of creative commons licenses allows free downloading printing of hardcopies and repurposing/remixing of content to suit the learning objectives in a particular course. Open textbooks are also scalable. As defined by the BCcampus [Open Textbook Project](#), open textbooks are an affordable, flexible alternative to traditionally-published textbooks. They significantly reduce student textbook costs while giving instructors the flexibility to customize their course material. Wikipedia also provides a good, concise definition of open textbooks: [http://en.wikipedia.org/wiki/Open\\_textbook](http://en.wikipedia.org/wiki/Open_textbook). Several faculty members teaching the same types of courses at different institutions can collaboratively write an open textbook. Students benefit from being able to choose their preferred medium – electronic or hardcopy. CC-type licensing also allows adaptation to other mediums to improve accessibility for the print-disabled. The content of open textbooks is much more easily updated as information on any given subject changes.<sup>1</sup>

Prices in the US textbook market have climbed to four times the price of inflation.<sup>2</sup> Prices have gone up over the last decade by 82%. The textbook industry is worth \$8.8 billion with five publishing companies controlling 80% of the market share.<sup>3</sup> The supply of open textbooks is growing but they presently only cover a fraction of college and university courses. Greater investment and support for open textbook development and publishing is needed to make them a viable alternative to commercial textbooks.<sup>4</sup> More institutions are embarking on campus-wide pilot projects to encourage use of open textbooks and to foster further development of these kinds of open educational resources. In 2013, U.S. Student Public Interest Research Groups estimated that over 2,500 professors adopted open textbooks in their classrooms.

It is much cheaper to print an open textbook at 5% to 25% of the price of a commercial one. UK surveys of students indicated that 80% of the respondents did not buy all the textbooks their instructors listed as required reading.<sup>5</sup> Likewise, 65 % of 2, 039 students surveyed from 150 US institutions reported deciding not to buy certain textbooks because they were too expensive. 94% of those who made that decision were concerned about their final grades, but nevertheless accepted the potential risk.<sup>6</sup> High textbook prices can have an effect on students' decisions with respects to the programs they pursue. They can affect how many courses they decide to register for within a certain time frame towards degree completion and job preparation. 48% of the American students surveyed remarked that high textbook prices were definitely a deciding factor in the number of courses they registered for at a given time.<sup>7</sup>

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<sup>1</sup> Coffin, Mark, Canada's Contribution to the Commons: Crating a Culture of Open Education, Athabasca University Graduate Students' Association, 2012, p. 7 [http://www.augsa.com/media\\_files/PDFs/reports/20120914%20-%20augsa%20-%20open%20education%20canada.pdf](http://www.augsa.com/media_files/PDFs/reports/20120914%20-%20augsa%20-%20open%20education%20canada.pdf)

<sup>2</sup> Freeze, C., *A new chapter on textbook cost inflation*, Times Union, July 22, July 2010, cited in Coffin, Mark, Coffin, Mark, Canada's Contribution to the Commons: Crating a Culture of Open Education, Athabasca University Graduate Students' Association, 2012, p. 7.

<sup>3</sup> Allen, Nicole, *The Future of Digital Textbooks*, American Association of State Colleges and Universities, Winter 2013 <http://www.aascu.org/WorkArea/DownloadAsset.aspx?id=6308>

<sup>4</sup> Senack, Ethan, *Fixing the Broken Textbook Market: How Students Respond to High Textbook Costs and Demand Alternatives*, U.S. PIRG Education Fund & the Student PIRGSs, 2014, p. 5 <http://www.uspirg.org/reports/usp/fixing-broken-textbook-market>

<sup>5</sup> BookBoon.com, *Textbook Survey, UK, 2012*, as cited in Advocacy Week 2013: Setting the Access Agenda, Canadian Alliance of Student Associations [http://www.casa-acae.com/wp/wp-content/uploads/2013/12/CASA\\_AccessAgenda\\_Advo2013.pdf](http://www.casa-acae.com/wp/wp-content/uploads/2013/12/CASA_AccessAgenda_Advo2013.pdf)

<sup>6</sup> Senack, Ethan, op. cit., p. 4

<sup>7</sup> *Ibid.*, p. 12 <http://www.uspirg.org/reports/usp/fixing-broken-textbook-market>

Commercial publishers have moved into the e-textbook space, however, the results often extend practices they have employed to monopolize the print market. The textbooks may be PDFs for reading on laptops or tablets. They are often designed to enable highlighting and annotations. At a cost of roughly 40 to 50% of retail price for textbooks, publishers make them available for a set period which typically expires after a semester in many cases. The texts are essentially e-versions of the print equivalents. Other limits imposed on commercial digital textbooks can include online codes to additional content that work a set number of times and which expire, and page printing limits.<sup>8</sup>

### **We are still in the early days of open textbooks**

Open textbooks could potentially challenge commercial publishers' lock on high textbook prices. Faculty at various institutions are switching from traditional to open texts for assigned materials in their classes.<sup>9</sup> But barriers to greater uptake new cost effective textbooks – particularly open textbooks – remain. Challenges to open textbooks include: quality control and content vetting; IT infrastructure; intellectual property; business models and interoperability. The supply of these types of resources must expand to be a viable and competitive option in the textbook space. Open textbooks need infusions of start-up investments. Proponents have to demonstrate the quality and usability of open textbooks when engaging various stakeholders in higher education both on and off campus. According to the U.S. Public Interest Research Groups, broad-based support for open textbooks will best help faculty make the switch: "The single most effective way for campuses, states, and the federal government to overcome this challenge is to provide faculty with the resources they need to make the switch."<sup>10</sup> In Canada, the provincial government in British Columbia supports university and community college students by helping to publish course-ready open textbooks for courses where the enrollments are highest.<sup>11</sup>

### **Significant savings passed on to students**

The savings passed on to students when faculty adopt open textbooks in the courses they teach are significant. At the University of Wisconsin-Madison, the average cost to students is \$100 per course, per semester. If every student enrolled at the university were to be assigned just one open textbook each semester, the money students could save would amount to about \$6 million dollars in one year. A comparison of two calculus textbooks helps illustrate that potential for greatly reducing students' textbooks costs. The 7<sup>th</sup> edition of James Stewart's *Calculus*, published by Brooks/Cole Cengage Learning, 2012, costs \$225 USD [\$248.95 Cdn] for the print edition. The e-book version is \$117.99 USD for 180 days access. *Single & Multi-variable Calculus*, by David Guichard et al, costs \$22.95 USD for a print-on-demand hard copy. The e-book is free without the access time limit of the e-version of *Calculus* by James Stewart.<sup>12</sup> The latter is not only competitive in terms of pricing, having received a good review from the Mathematical Association of America.<sup>13</sup>

### **Challenges to greater adoption of open textbooks**

In spite of the many benefits they offer, open educational resources including open textbooks are still in

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<sup>8</sup> Ibi., p. 8

<sup>9</sup> As of 2013, over 2500 faculty members from 750 U.S. colleges had signed The Student PIRGs Faculty Statement on Open Textbooks. Signing the document is an expression of faculty members' intent to consider assigning open textbooks when appropriate whenever possible. [Faculty Statement on Open Textbooks](http://www.studentpirgs.org/open-textbooks/faculty-statement)  
<http://www.studentpirgs.org/open-textbooks/faculty-statement>

<sup>10</sup> Senack, Ethan, op. cit., p. 14 <http://www.uspirg.org/reports/usp/fixing-broken-textbook-market>

<sup>11</sup> British Columbia Newsroom, Students saving money with open textbooks, January 10, 2014  
<http://www.newsroom.gov.bc.ca/2014/01/students-saving-money-with-open-textbooks.html>

<sup>12</sup> Senack, Ethan, op. cit., p. 13 <http://www.uspirg.org/reports/usp/fixing-broken-textbook-market>

<sup>13</sup> Single and Multivariable Calculus (review), Mathematical Association of America  
<http://www.maa.org/publications/maa-reviews/single-and-multivariable-calculus> [Retrieved February 28, 2014]

a transitional, early adoption period. Critical mass could be some years away. Proponents need to engage and educate faculty on already available texts, other OERs, and on the readily available tools they can use to repurpose existing open textbooks or create their own. While incentives for publishing articles in prestigious scholarly or scientific journals are largely about career advancement and gaining reputational capital among peers, faculty have the added prospect of another source of income accruing from royalties of sales of commercial textbooks they publish.

Career prospects and future promotions motivate decisions on publishing venues, favouring high-calibre journals and prominent book publishers as the gold standard. And yet emerging forms of scholarship, which are often open and freely available, are gaining legitimacy and recognition across the continually evolving scholarly communication landscape. In 2007, Kansas State University ethnographer Michael Wesch produced an educational video entitled “Web 2.0...The Machine is Us/ing US” and uploaded it to YouTube. That video had 11, 637, 661 views by end of 2012. As Billings et al note:

That kind of reach for any written product would be the dream of almost any scholar. This is an era when what constitutes a publication is beginning to change, and the metrics used to evaluate the impact of a publication are also changing. As this continues, publication of openly accessible learning objects might be seen as a more attractive endeavour by faculty than previously realized, and download metrics that are provided by institutional repositories will help faculty gauge the impact of these works.<sup>14</sup>

Sustained advocacy, such as the kind libraries put behind open access, will help put OERs and specifically open textbooks on faculty members’ agendas. They will receive more seed funding when they are recognized as legitimate contributions to teaching and scholarship. Inasmuch as faculty assign book chapters and scholarly monographs as required reading in upper level undergraduate and graduate courses, broader adoption of open textbook publishing platforms may help, in some ways, to pave the way for closer collaboration and experimentation with different business models between university presses and libraries.

The various impediments to greater adoption of open textbooks merit particular attention and will require a systematic approach among various players in the higher education and research communities to overcome. As Di Valentino points out, open textbooks will not see significant uptake without a variety of stakeholders helping to sustain their production and build a critical mass while addressing various challenges:

Textbooks do not appear out of thin air; they must be written by authors who are well-versed in their discipline. The academics who write textbooks are employed at post-secondary institution, and must balance this endeavour with teaching, supervision, research, grant applications, and committee responsibilities. Junior faculty who are working towards earning tenure credits are often advised by senior faculty to forego textbook authorship for “worthier” pursuits such as research, which are viewed more favourable by tenure committees.<sup>15</sup>

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<sup>14</sup> Billings, Marilyn S., Sarah C. Hutton, Jay Schefer, Charles M. Schweik and Matt Sheridan, *Open Educational Resources as Learning Materials: Prospects and Strategies for University Libraries*, *Research Library Issues*, No. 280, September 2012, p. 4 <http://publications.arl.org/rli280/2>

<sup>15</sup> Di Valentino, Lisa, *Open textbooks and provincial government policy: a look at the issues*, Working paper, Scholarship @ Western, 2012, p. 17.

Faculty need incentives to write entire open textbooks or to contribute chapters or modules to them. Open education advocates need to educate faculty widely on the merits of such pursuits and dispel common perceptions regarding low quality. Until they know of some of the many strong points of open textbooks, most faculty members will view them as inferior to commercial textbooks not deem them worth their time and effort. Outreach and marketing efforts have to cover some key messages such as:

- Several authors can collaborate on an open textbook.
- The workload can be easily divided.
- Different authors can contribute different chapters or modules both of which editors can vet.
- Disciplinary associations could play an important role providing review and editorial oversight for open textbooks.
- Individual authors' contributions can be largely seen by peers and students as the resulting textbook is freely as a whole or a collection of separate modules.

Incentives could include paid, tenure points, academic credit, editorial support, grants, or awards and monetary prizes for the best received textbooks.<sup>16</sup>

For financial reasons, Maron notes that “some authors may like the current system just fine”. Experienced textbook authors, many of whom are faculty members, can have legitimate financial reasons for remaining with their commercial publishers. For example, an introductory undergraduate textbook selling approximately 20,000 units yearly can often yield a royalty payment totalling around \$160,000 USD if the author gets 10% of each copy sold.<sup>17</sup>

Aside from the monetary matter, other factors pose challenges to wider use of open textbooks:

- Instructors make the final call what textbooks and ancillary materials students will require for the courses they teach whether they are free, low or high-priced. One key question is how already available open textbooks, for various subjects, actually compare to already established commercial texts for those same subjects.
- Ancillary materials - such as online quizzes, test banks, additional problems and their solutions, simulations, or any kinds of supplemental materials and tools which serve to assess or enhance teaching outcomes – also require time and resources which commercial publishers already invest in their products.
- The pace at which knowledge advances and at which teaching evolves both require for content to be updated frequently. The content needs a community comprising dedicated teachers, writers and content creators.
- Promoting open textbooks and making them easily findable to targeted users takes time and effort: “While mandating deposit into accepted repositories or platforms is a good start, this pales in comparison to the ongoing communications juggernaut that professional publishers deploy”.

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<sup>16</sup> Ibid, pp. 18-19.

<sup>17</sup> Maron, Nancy L., Opening the Textbook Market: New Opportunities for Libraries and Publishers, ITHAKA S + R, 2014, p.8

- OT's will need the right business models to sustain the necessary editorial work, the user interface that will enable faculty and students to find and use the available texts. The question also remains whether some models ultimately require charging users for certain value-added features or services in order to remain sustainable.<sup>18</sup>

It remains to be seen whether open textbook operating models can be sustained in the long term. Successful textbooks generate big business. Can university presses play a role in supporting a market for open textbooks? Libraries have traditionally been the biggest market for university press publishers. Libraries do not generally acquire textbooks and university presses typically do not publish them on mission grounds. Often the latter do not produce them because they cannot compete with commercial textbook publishers. Textbooks are not commonly placed in research libraries' collecting remit and they often configure wholesale approval plans to explicitly exclude them.<sup>19</sup> Indeed, if open education advocates are to successfully promote open textbooks to faculty members, it will be important to determine the ways libraries can contribute to creating and sustaining a critical mass of available open textbooks. University presses face considerable sustainability challenges of their own, and it is unclear at this time what role they might play in the open textbook market.

While economic issues are gradually worked out, the matter of educating faculty on open textbooks - the available options, their advantages, tools and resources for creating and remixing them - remains of critical importance. Seeing open textbooks from the point of view of a faculty member who is favourable to them is instructive on the host of challenges – including the matter of outreach and education - one must address to help OT's gain more traction in the market. Dr. Rajiv Jhangiani, who teaches psychology at Kwantlen Polytechnic University, remarks:

In my experience, there is no single faculty perspective on open education in general and open textbooks in particular. Some, like myself, are early adopters. Others are willing to go along if their concerns are addressed. Still others remain skeptical and resistant. And there are many views in between, many of which contain a mixture curiosity, interest, and concern.<sup>20</sup>

Aware as he is of the faculty point of view in matters regarding textbooks, he's appears equally sensitive to students' concerns:

Every semester I notice students in my classes who elect not to purchase the course textbook (despite cautionary notes from me) due to financial constraints. My colleagues report the same. This is especially true given the increase in the price of a traditional textbook over the past decade. We cannot fault our students for questioning the value of their (forced) purchase. As an example, the textbook I previously assigned for research methods in psychology runs 416 pages long and retails for \$114.95 plus taxes and shipping. I should say that it is a great book and well-written. But, in contrast, the Canadian edition of the open textbook for research methods in psychology that I revised runs 378 pages long and costs my students nothing. If they wish to

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<sup>18</sup> Ibid, p. 11.

<sup>19</sup> Ibid, p. 4.

<sup>20</sup> Jhangiani, Rajiv, "A faculty perspective on open textbooks", Noba Blog, April 30, 2014.

order a print copy of the book it will cost them \$13.06 plus taxes and shipping... So why are faculty not yet adopting open textbooks more widely?<sup>21</sup>

Rajiv goes on to discuss the challenges and some potential solutions as he sees them. Open textbooks are lacking for many course and disciplines. Many faculty members have concerns about the quality, comprehensiveness, clarity and currency of open textbooks (though, in fact, they can be more easily revised and updated – even more so when authors do so collaboratively). Some OT initiatives, such as BCcampus, collect and post faculty reviews of textbooks in their respective repositories, but others do not. Open textbooks – or chapters - that leading scholars write help address doubts about quality. Unfortunately, many OTs still come without important ancillary materials and tools that help to provide students formative feedback. Such materials are necessarily easily created from scratch. Sometimes selecting a textbook for a course is not a decision that comes down to individual professors; there are often several assigned to several sections of the most highly-enrolled courses, which is can be the case with many lower-level undergraduate courses.<sup>22</sup>

Obstacles aside, Rajiv has a positive outlook on the future of open textbooks and sees the potential for a transformation in the college/university textbook market. Regarding the choices individual faculty may make once there is a critical mass of available open textbooks, he writes: “I believe that if faculty are presented with an open textbook alternative that has been favourably reviewed by other faculty, embeds good pedagogical features, and has an available test bank, it would be more difficult for the majority to continue upholding the status quo”.<sup>23</sup> Before open textbooks can “go mainstream”, he sees the following as key issues the stakeholders need to address:

- Who will revise/update content?
- Government support and resource sharing are vital to OTs success are vital
- Institutional culture needs to shift, and that includes institutional priorities moving towards open education: “From the President’s office down, open education initiatives need to be supported for these to develop”. And that includes:
  - Time releases for faculty who want to create or adapt OTs for the courses they teach
  - Institutional recognition for such work, open textbooks and open educational resources as tangible criteria in tenure track files in other words
  - Regularly-offered practical workshops on adopting, creating or adapting OTs
  - Tools and resources for authoring open texts<sup>24</sup>

A study the University of California Berkeley Center for Studies in Higher Education conducted with the Student Public Interest Research Groups (Student PIRGs) revealed the same, largely, cultural challenges to broader adoption and the creation of a critical mass of open textbooks. With participants from the STEM (science, technology, engineering, and math) fields and also from business and economics, the study comprised some small focus groups and a survey – the latter getting a 5.9% response rate. When

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<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

it came to selecting a text (open or traditional), responding faculty indicated that they valued having flexibility in selecting a wide variety of supporting materials including but not being limited to: graphs, illustrations, animations, detailed exercises, homework sets and their solutions. Many agreed that customizability for course materials was important, however, “some faculty expressed concern that essential supplementary materials might not be included in an open textbook”. Most recognized that affordability for students was an important consideration for textbook selection. Other major issues that respondents said they had with open textbooks included:

- Remuneration for authors
- IP protection
- Content quality
- A perception that OT solutions did appear to consider the “value that publishers bring to the table”
- That “educational professionals involved in textbook writing, illustration, and production need to be paid for their work”
- Many perceived the notion of “open, free, affordable and high-quality” textbooks as oxymoronic
- A perceived [and as of yet, real] lack of a necessary critical mass of “viable and trustworthy open textbooks in many subjects”.
- Lack of time to “navigate through the available options and customize them”

Harley et al noted that “From these conversations, it was apparent an electronic book (in any form) must, first and foremost, function like a printed book [insofar as students have the option to obtain a hard copy in its entirety]. Vigorous peer review and editorial oversight are essential components for open textbooks, and it may be possible to tap disciplinary associations to serve these [latter] functions”.<sup>25</sup>

Contact North, Ontario’s distance education and training network, conducted a study of open educational resources. What it reported about open textbooks is consistent with other challenges already reported in the literature on OERs and OTs. In Ontario, there are a few faculty at the forefront with open textbooks, but there are many more unaware, uninterested or even opposed to the idea of OERs. Many faculty view open textbooks unfavourably, associating them with “a proliferation of information on the Internet and its indiscriminate use by many students”.<sup>26</sup>

If open textbooks are to compete with commercial textbooks they need effective business models based on effective workflows, licensing, and sustainable revenue streams. OTs must be useful across, borders, cultures, nations and regions. Because authoritativeness and credibility are paramount, they must be written by recognized subject experts. They should follow sound instructional design standards in order to “engage and challenge learners”. OT creators should abide by agreed-upon technological standards: standard text and video formatting, standardized metadata for easy discoverability. And they need to

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<sup>25</sup> Harley, Diane et al, “Affordable and open textbooks: an exploratory study of faculty attitudes”, Research & Occasional Paper Series, Center for Studies in Higher Education, September 2009, pp. 6-11.

<sup>26</sup> Open Educational Resources (OER) Opportunities for Ontario, Contact North: Ontario’s Distance Education & Training Network, October 2011, pp. 14-16.



just as well-designed for modularity, granularity and interoperability for those faculty who seek to pull material from various sources to repurpose and tailor it to better suit specific courses. On that last point, licensing must allow for adaptation and repurposing of content, including permissions for remixing. Creative Commons licensing is a possible approach to meet that criterion.<sup>27</sup>

No operational model comes without costs. A variety of funding models can be applied to open textbooks: endowments, memberships, donations, contributor-pays models, sponsorships, institutional support, government support, cost-sharing partnerships. The question of centralized vs. decentralized textbook production is important. The former may require more funding, but might more to standardized licensing and interoperability standards. Other important kinds of standards can include framework for assessing the quality of open textbooks. As for other considerations for sustainability, visibility matters. How OTs will be marketed and where they will be hosted are important considerations. Faculty need incentives to create, adopt, or remix open textbooks. Supportive institutional policies will go a long way to sustaining funds for OTs, and keeping faculty engaged in their use and production.<sup>28</sup>

Rice University's Connexions and the Community College Open Textbook Project (CCOTP) modelled a workflow process to develop, identify, review and disseminate open textbooks. The pilot phase involved one statistics and three mathematics textbooks. Connexions cooperated with the Institute for the Study of Knowledge Management in Education (ISKME) to conduct research consisting of faculty interviews, student discussion groups, online surveys, and pluralistic walkthroughs. According to Baker et al, "The main goal was to understand how well the current [open textbook] content structure and interface worked for the students and faculty who would be using such content".<sup>29</sup>

Feedback gained in the Connexions/CCOTP piloting phase confirmed the importance of authoring style guide, assembly line workflows, customizability of content, interactivity with the material, textbook navigational reading aids, and ongoing authoring interface improvements. A style guide, complete with a set of well-defined standards, enables the effective distribution of content among several contributors "who must format the content consistently" when using the open textbook authoring platform. Students valued faculty members' ability to customize for course content. Both instructors and students appreciated being able to access course material anywhere, anytime. Faculty also valued linking to specific parts of an textbook in their course management systems. Students appreciated features such as navigational aids, definition pop-ups, and embedded exercises. Regarding the latter point, Baker et al reported that "students believed that the books would be even more useful if there were more problems, interactive simulations, and practice quizzes". Although students liked modality of open textbook content, faculty did not like so much of it that it "broke up the flow of their lessons. Another

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<sup>27</sup> Kazakoff-Lane, Carmen, Environmental Scan and Assessment of OERs, MOOCs and Libraries: What Effectiveness and Sustainability Means for Libraries' Impact on Open Education, Association of College and Research Libraries, 2014.

<sup>28</sup> Ibid.

<sup>29</sup> Baker, Judy et al, "Open Textbook Proof-of-concept via Connexions", *International Review of Research in Open and Distance Learning*, Vol 10, No. 5, November 2009, p. 7.

point about modularity was that students highly valued being able to digest information and key concepts in smaller chunks.<sup>30</sup>

Connexions's has created a business model that includes a complete workflows processes providing "tools to authors for creating content that ranges from single-topic treatments to complete textbooks". For licensing purposes the model uses the Creative Commons Attribution license. One of the proof-of-concept titles was *Collaborative Statistics*. It is an introductory-level textbook, and can be viewed online for free [or a print-on-demand copy can currently be purchased for \$18.76 USD]. This open textbook comes with a teacher's guide, a suggested syllabus, practice exams, calculator instructions, and lecture videos.<sup>31</sup>

Launched in 2012, OpenStax College is a non-profit entity based at Rice University (Texas) that initially offered 7 peer-reviewed open textbooks online for free. OpenStax received funding from the Bill & Melinda Gates Foundation and from the William and Flora Hewlett Foundation. The prices of the print versions, of the open textbooks, are from \$30 to \$54 USD, and are available in more than 3000 college bookstores. There were an estimated 500,000 downloads of the initial 7 digital textbooks. The goal for OpenStax College is to eventually offer 25 open textbooks for the most attended college courses in the U.S. Founder and Director of OpenStax College, Richard Boranick, remarked: "The educational materials and publishing industry in five to ten years will be completely remade, just as the music industry, the newspaper industry and computer software industry were completely remade by the Interent".<sup>32</sup>

Although commercial textbook publishers downplay the challenge from educational content start-ups and open textbooks, there are signs of the dominant players in the textbook industry adapting to change. Digital products and technology, curricular design services (including online tutoring) account form more than half of Pearson's total sales revenue, which amounted to about \$8.8 billion USD in 2013.<sup>33</sup>

There are few workflow tools in the form of scientific textbook authoring software. The German National Library of Medicine (ZB MED) is working on a "state-of-the-art software toolbox for open access publishing of digital textbooks".<sup>34</sup> When completed, the completed authoring platform will include workflows for manuscript submission, peer review, tools for uploading and embedding images, videos and various other non-textual supporting materials. The editing tools will facilitate text capture, structuring, formatting, copy-editing and proofreading. The platform will support the creation of keyword, acronym and subject-specific indices. The project aims to be device agnostic: "The technology to be used will allow for device-independent and barrier-free use of the contents". Updating capabilities will provide authors a version control mechanism. A long-term preservation system will provide an interface for ingesting content. The toolbox is also supposed to provide peer-review criteria, metadata

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<sup>30</sup> Ibid, pp. 8-11.

<sup>31</sup> Ibid, p. 5.

<sup>32</sup> Opidee, Ioanna, "College Textbook Forecast: Radical Change Ahead", *University Business*, August 2014.

<sup>33</sup> Ibid.

<sup>34</sup> Eppelin, Anita and Richarda Böttcher, "Development of a toolbox for publishing of living open access textbooks", paper presented at eIPub 2012. See also: <http://www.leibniz-science20.de/en/forschung/weitere-science-2-0-projekte/living-textbooks/>

standards, and business model (unspecified). The people behind this particular project intend for “the toolbox to be accompanied by a comprehensive best practice guide for open access publishing of scientific textbooks”. In this case, an open textbook for hand surgery is to be the proof-of-concept. It will be published in English, and written for hand surgeons and daily surgical practice. The text will be published in stages, will be continually updated, and benefit from an international editorial board of more than 10 hand surgeons.<sup>35</sup>

Non-profit publishers and libraries are also in competition with for-profit players in the open textbook market specifically. Flat World Knowledge (FWK) is in the business of selling textbooks that cost less than the traditional commercial texts. FWK operates on the following model. Experts write open textbooks while receiving editorial support from FWK. The resulting textbooks were at one point free to read online, with the option for students to purchase print or audio versions as well accompanying ancillary materials. Hilton and Wiley noted in 2011:

Although free many sound good to consumers, it can be very difficult to make money if your re giving away your product. Michael Jensen of the National Academies Press reported that his organization (which makes all of its materials available for free) is facing declining sales. Only a few years earlier, Jensen had reported that giving digital books away had increased sales (Jensen, 2007). Thus when dealing with free digital content, what worked today might not work tomorrow. As FWK moves forward with its specific model, it may encounter challenges if an increasing number of students become comfortable with the free version of its textbooks, and choose not to purchase printed books or ancillary materials.<sup>36</sup>

Now the textbooks Flat World Knowledge offers are not free but they are priced competitively (at least compared to many traditional textbook publishers), the typical textbook price ranging from \$42 to \$134 USD and comes with a host of online ancillary materials included in the purchase.<sup>37</sup> FWK’s texts remain open textbooks insofar as they can be customized like open textbooks that are free. That a publisher should adjust its operational model from free digital to a tiered paying model may be indicative of the challenges in providing something for free or at very competitive prices while remaining in business.

Another model for open textbooks can involve partnerships between the post-secondary education and the private sector. Algonquin College in Ottawa, Ontario, is rolling out an e-textbook program. Starting in Fall 2014, 10,000 students – representing about two thirds of the school’s programs – will be able to obtain digital, printable versions of their textbooks costing 52 or 53% of the print equivalents. The digital textbooks will be accessible on computers plus two more digital devices with iOS or Android operating systems, and they will be searchable while linked learning management platforms and other resources.<sup>38</sup> VitalSource is the commercial e-textbook provider working with Algonquin College on this initiative.

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<sup>35</sup> Ibid.

<sup>36</sup> Hilton, John and David Wiley, “OA Textbooks and Financial Sustainability: A Case Study on Flat World Knowledge”, *International Review in Open and Distance Learning*, Vol. 12, No. 5, 2011, p. 23

<sup>37</sup> See Flat World Knowledge <http://www1.flatworldknowledge.com>

<sup>38</sup> Maclean’s, Cheaper textbooks on the way at Algonquin College and Western Canada, March 26, 2014

### **Open textbooks require collaboration among various stakeholders**

Various stakeholders need to work together for open textbooks to gain traction and eventually compete with the commercial textbook market. The U.S. PIRG Education Fund & The Student PIRGs make four recommendations in their report:

- Students and campus administrators should work together to create their own open textbook pilot programs
- State and federal legislatures should invest in the creation and development of more open textbooks
- Faculty should consider adopting open textbooks in their classrooms
- Publishers should develop new models that can produce high quality books without imposing excessive costs on students<sup>39</sup>

Students raising the matter of open textbooks with university administrations and working with them to move the OER agenda further will serve to make open textbooks (with affordable hard copy versions) a high-profile issue on campus. Involvement in and investment from government adds further impetus in fostering broader access to accessible learning resources for higher education. Making this a matter of public policy is appropriate as it speaks to affordable education and, therefore, has wide-ranging implications – e.g. students having the means to access resources they need to pursue educational goals, earn needed certification, credentials to seek employment, pursue entrepreneurial opportunities, or embark on advanced studies and specialized research – all of which are key to ensuring Canada remains a productive and competitive country.

Faculty certainly do well to consider switching to high-quality open textbooks for required reading material in their courses. Encouragement alone, however, may not suffice in efforts to foster greater uptake of these particular kinds of OERs. Proponents need to work with faculty in order to gain more recognition of open textbook publishing as a legitimate contribution to faculty members' respective fields and to see that they carry weight in promotion and tenure decisions. Of course, the greater critical mass of available source material for faculty to work with, in terms both creating, mixing and repurposing new content, so much the better in the interest of having professors view open textbooks as legitimate outputs in their research and teaching activities. As Senack points out "Investment from the government would fast-track the production of vital high-quality classroom-ready texts, as well as providing colleges and faculty the resources they need to use available open textbooks in their classrooms immediately."<sup>40</sup>

Indeed in Canada, students' and some faculty members' efforts to raise awareness of the high price of textbooks for post-secondary education are beginning to pay off. On March 13, 2014, the Alberta Ministry of Innovation and Advanced Education, the British Columbia Ministry of Advanced Education, and the Saskatchewan Ministry of Advanced Education signed a "Memorandum of Understanding on Open Educational Resources". The purpose of this MOU between the Western provinces is to achieve three goals:

- To facilitate cooperation and sharing development of OERs among the participating provinces,
- To identify, share and promote the use of best practices with OERs, and

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<sup>39</sup> Senack, Ethan, op. cit., pp. 15-16

<sup>40</sup> Ibid., p. 16

- To foster greater collaboration and greater understanding of key trends and issues “between and among post-secondary institutions and the participants’ jurisdictions”.<sup>41</sup>

In British Columbia, the province’s post-secondary institutions are partnered with the BC government in the implementation and development of a policy and program culminating in the creation of Creative Commons-licensed textbooks for 40 first and second-year university courses. BCcampus, a publicly-funded organization that investigates and implements technologies in BC college and university campuses, coordinates the provinces’ open textbook program.<sup>42</sup>

Promising to push for more open textbooks, Max FineDay won his position as president of the University of Saskatchewan’s Student Union. His efforts helped establish the MOU between the governments of Alberta, British Columbia, and Saskatchewan committing the three provinces to the development and sharing of open educational resources, including open textbooks.<sup>43</sup> By aligning themselves with students’ initiatives, and with those of provincial government committing resources to open textbook and OERs in general, libraries have an opportunity to bring their expertise to bear on the task of creating a sustainable critical mass of free open digital textbooks that is re-mixable and can be continually built upon.

### **Conclusion**

Publisher experimentation in new business models is needed, but it must go beyond simply making traditional print textbooks available as PDFs. Supplementary bundled content with time-limited access codes and textbook rental fees do not pass on enough savings to students. Some models seem more promising than others, and there are a number of emerging publishers specializing in open textbooks. Libraries have an opportunity to partner with faculty to raise their awareness of the range of open texts that already exist and the tools available to remix them or to create entirely new textbooks such as the Public Knowledge Project’s Open Monograph Press.<sup>44</sup> Inasmuch as institutional repositories already serve to preserve and provide access to a wide range of OERs, including but certainly not limited to journal article e-prints and technical reports, they may also provide a platform for open textbooks.

Partnering with university administrations, with government whenever the opportunity arises, as well as with faculty and students to raise awareness of, interest in, and to create open textbooks is a sound investment in library resources. Textbook affordability is a critically important issue for university students. Libraries potentially benefit from getting involved in this currently high profile problem for students, but they also have pertinent expertise to offer. Kazakoff-Lane remarks:

Libraries have a history of managing resources – whether physical or digital – in a way that facilitates in their discovery, dissemination, usage, intellectual property licensing, and preservation. These [library] systems are already capable of supporting and preserving digital materials in a range of formats. Adapting them to include services such as indexing or reviewing of content – and providing technologies that support OER [including open textbooks] location and usage – is a natural evolution in service. Such an evolution would facilitate awareness,

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<sup>41</sup> Memorandum of Understanding on Open Educational Resources, Alberta, British Columbia and Saskatchewan, March 13, 2014

<sup>42</sup> Di Valentino, Lisa, *op. cit.*, pp. 5-6

<sup>43</sup> Maclean’s, Cheaper textbooks on the way at Algonquin College and Western Canada, March 26, 2014

<sup>44</sup> Public Knowledge Project, Open Monograph Press <http://pkp.sfu.ca/omp/>

visibility, and preservation of OERs in the most efficient manner for higher education institutions.<sup>45</sup>

Libraries already have experience in supporting open educational resources provision and extending that work to include open textbook is a logical next step. A 2010 survey of 12 countries, including the US and the UK, indicated that where libraries have typically played a role in supporting the use of OERs was in: description and classification, management, preservation, dissemination, and promotion. Responding libraries also reported involvement in matters of IP and licensing rights, discoverability and assessment of OERs.<sup>46</sup>

Open textbooks and open educational resources come with challenges, even though social trends, current developments in higher education, and funding agencies, governments or both support them. Greater uptake of these particular resources will require their advocates to address a host of quality, instructional design, technological, licensing, funding and participation issues. The resulting resources must also be scalable, sustainable and ideally free or economically priced to better fit students' budgets.<sup>47</sup>

It is an opportune time for research libraries to be more directly implicated in the sustaining and promoting open textbooks as students and governments at various levels have clearly begun to direct time and resources to them. This is likely something libraries cannot do alone. They can help the higher education community achieve a more robust and sustainable open textbook platform by aligning themselves with student groups, those faculty members already involved, and with governments that are already active in this space.

The matter of free open textbooks or more affordable ones as an important issue is currently high on students' and some governments' agendas, making added impetus for library involvement timely. Some sources suggest that college and university textbook prices have risen by 800% in the last 30 years. The average [US] college student spends \$1200 year on textbooks and course materials. The figure is not very different for Canadian students pursuing post-secondary education, so it is not surprising to see western provincial governments taking action on open textbooks. In 2013, Senators Al Franken (D – Minn) and Dick Durbin (D-Ill) introduced to Congress, "The Affordable College Textbook Act". If passed, the act would provide support, via grants, to pilot programs at schools to expand open textbook distribution and usage.<sup>48</sup>

At this time, the western provinces – particularly British Columbia – have seen a great deal of activity around open textbook. This is likely where some best practices are likely to emerge. Participants at a spring 2014 BC open textbooks summit, including librarians and faculty among other stakeholders, identified some key challenges:

(1) "Librarians have a crucial role to play". – At one participant's institution, reserved textbooks are in a large rotation; the attendee, a librarian, is working collaborating with other players on campus to develop an OER project that focuses on the top ten most enrolled courses.

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<sup>45</sup> Kazakoff-Lane, op. cit.

<sup>46</sup> Bueno-de-la-Fuente, G., Robertson, R. J., and Boon, S. The Roles of Libraries and Information Professionals in Open Educational Resources Initiatives, Survey Report No. 492, University of Bolton : Jisc Cetis, August 2012.

<sup>47</sup> Kazakoff-Lane, op. cit.

<sup>48</sup> Opidee, Ioanna, op. cit.

(2) “Students have more of an impact than they might think”. – Student activists at the University of Maryland successfully campaigned for an OER program that includes open textbooks. In the same vein and as noted above, students in Alberta, BC and Saskatchewan were ultimately successful in getting their provincial governments behind open textbooks as well. The message for students attending the BC summit was clear: that they seek out support on the textbook issue where needed – from “librarians, faculty groups, and [college and university] administrators”.

(3) “Open textbooks means control is given back to instructors”. – A professor teaching a statistics course designed a textbook that focussed on grasping concepts instead of just solving for variables. The content was tailored to be “more relevant to students’ real-world experiences”. Another professor extolled the benefits of being able to edit content to more closely match the specific goals of a particular course. OT authors are in control of revisions, editing changes, and the students are always working from the same copy of the text [as opposed to a previous edition because of the cost of the text].

(4) “Taking control of the educational content takes commitment”. – Kate Cotie, who was present at the open textbook summit and representing the BC Ministry of Advanced Education, remarked, “One of the big challenges we face is sustainability. We want to grow OERs [including OTs] into something that is that is mainstream”. But faculty need to be able to commit some of their limited time to contribute to that critical mass of OERs Coatie spoke of. Diane Salter-Menzo, Kwantlen Polytechnic University, Vice-Provost, Teaching and Learning, addressed the matter of faculty time devoted to authoring OERs and open textbooks. They require time to conduct research for content in many cases, time to modify and edit, and time to determine how best to integrate such materials into the courses they teach. Salter-Menzo also pointed out that institution-wide policy and resources should be in place to enable libraries to play a role in supporting faculty with OER and open textbook adoption or creation. With institutional support, she suggested libraries can clarify caveats professors have with respects to open textbooks, and to generally help demystify the process of open textbook selection, remixing or creating new texts for classes.

(5) “We need a bigger developer community around the technology of open source publishing”. – BCcampus uses the open source Pressbooks platform. The technology is built on the widely-used and popular WordPress content management system many faculty members are already familiar with. Some of the advantages of Pressbooks include:

- Authors can create and push content in various formats such as PDF and ePub.
- The platform can work in tandem with other content providers. For example, BCcampus has partnered with Simon Fraser University to offer print-on-demand open textbooks.<sup>49</sup>

Libraries are in a position to assist faculty in developing or adopting open textbooks by:

- providing intellectual property advice;
- lending a hand with some of the instructional design in terms of usability;
- providing assistance with mixing or adapting OERs and OTs in a wide range of formats;
- facilitating access to the tools to create or re-mix open textbooks via “multi-media labs, data and mapping labs, 3D modelling” etc.;
- Lending expertise in cataloguing: that is, metadata tagging and indexing for search/retrieval, and optimal dissemination/discoverability;

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<sup>49</sup> Anggraeni, Hilda, [Five lessons learned at the Open Textbooks Summit 2014](http://bccampus.ca/2014/04/22/five-lessons-learned-at-the-open-textbooks-summit-2014/), BCcampus Blog, April 22, 2014

- providing space to host and preserve open textbooks;
- providing publishing support;
- and, generally, helping authors to avoid duplication or “re-inventing the wheel”.<sup>50</sup>

Kazakoff-Lane argues that libraries’ role in open textbooks, however, goes beyond providing practical support. They can position themselves to raise key stakeholders’ – faculty, government, students, publishers open to change and experimentation - awareness of OER and open textbooks, helping to foster greater interest and understanding of the issues involved. The libraries’ role can be a transformational one, also manifesting itself in:

- an ability to address concerns: additional burdens on already heavy faculty workloads, perceived lack of quality in open textbooks;
- helping to create institutional support via senate, faculty, and departmental discussions;
- leveraging endorsements of faculty, who have created or adopted open textbooks, to advocate for sustained resource allocation for OERs and OTs;
- advocating for policies and procedures supportive of open textbook creation;
- working with their institutions, consortia, and government agencies to secure proper support and seed or additional funding for OERs and OTs;
- and leveraging existing relationships with institutional publishers, campus bookstores, print centres, to successfully advocate for creating, distributing, reusing and customizing open textbooks.<sup>51</sup>

Fostering greater uptake of open textbooks and helping to provide a platform for them naturally complement libraries’ longstanding work promoting open access and educating faculty on wide-ranging scholarly communication issues. Lending libraries’ support to open educational resources – particularly open textbook initiatives – furthers their missions to support learning, teaching and research at their parent institutions in as cost-effective a way as possible.

### **CARL open textbook survey**

In summer 2014, the CARL office distributed a short survey questionnaire (See **Appendix 1**) to its members. The purpose of the questionnaire was to obtain a snapshot, as CARL librarians see it, of what the adoption of open textbooks looks like at their respective institutions. 9 out of 31 members responded to the survey, resulting in a 29% response rate.

Three respondents said that their institutions are piloting or participating in an open textbooks project, three said that they were not at this time, and three were not sure. The survey asked participants: “What role does your library have in open textbooks at your institution?” Respondents gave the following answers (not respondents gave an answer):

- “No role as there is no open textbooks project”.
- “The general topic of textbooks is outside the scope of the library’s mission and one generally that resides with the university bookshop and more recently with the portfolio of the Vice Provost (Teaching & Learning). The undergraduate student association is also interested”.
- “We have formed a working group to raise awareness of open textbooks on campus”.

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<sup>50</sup> Kazakoff-Lane, op. cit.

<sup>51</sup> Ibid.



- “Co-organizing campus "e-textbook" event; raising awareness; providing access to BCcampus collection through Library database list.”

Though there is some traction around OERs, and some discussions taking place, it seems that it is still very much the early days of open textbooks on CARL campuses (BC excluded perhaps, with the BCcampus OT project starting to build a critical mass of open textbook content for the most enrolled college and lower-level undergraduate courses.)

With respects to faculty members’ usage of open textbooks, one respondent said that they know of faculty members using open textbooks hosted at their institution, one remarked that they of several faculty using open textbooks in their courses, another remarked that they also knew of faculty adopting open textbooks elsewhere, and six indicated that they did not know of any faculty using open textbooks. To the question of what the uptake of open textbooks looks like, in general, at their institutions one said that the uptake, so far, seems practically non-existent, one said that faculty are beginning to adopt them, five replied that they were not sure what the overall uptake of open textbooks is presently like on their campuses.

## **Some open textbook publishers and platforms**

### **Connexions**

Connexions maintains an educational content repository and a content management system optimized for the delivery of educational content in the arts, business, the humanities, math and statistics, science and the social sciences. The content consists of modules, “like small knowledge chunks,” and collections comprising “groups of modules structured into books or course notes.” Connexions’ open license allows for free use and reuse of all its content. <http://cnx.org/>

### **Flat World Knowledge**

Flat World currently provides over 100 affordable college textbooks via an online platform that allows instructors to personalize content to suit the requirements of their particular courses. Broadly, there are open textbooks in business and economics, humanities and social sciences, pure and applied sciences, and math. <http://catalog.flatworldknowledge.com/>

### **Athabasca University Press**

Athabasca University Press focuses its output on Canada, the North American West, and the Circumpolar North. AU Press is mandated to publish innovative and experimental works. Print monographs are available for purchase, and on an open access basis; individual chapters or the entire digital versions can be downloaded free as PDFs. Technology in Education and Distance education are two particular strengths of the press, but the overall subject matter of the books it publishes is broad including the humanities, social sciences, health sciences, science and technology. <http://www.aupress.ca/index.php/>

### **University of Calgary Press**

University of Calgary Press books explore a host of issues including: the West; arctic and northern studies; energy, ecology and sustainability; Canadian history and the environment; military and strategic studies; contemporary Canadian art and architecture; African studies; Latin American & Caribbean studies, and film studies. With its authors’ permission, through use of Creative Commons licenses, free PDFs can be downloaded from the web pages for various books. Free digital versions are currently available for 57 titles. Like all the monographs published by the press, hardcopy versions of the OA books are also available for purchase. <http://uofcpress.com/openaccess>

### **BC Open Textbook Project**

Funded by the BC Ministry of Advanced Education and managed by BCCampus, the BC Open Textbook Project has so far made available 40 openly-licensed digital textbooks free for B.C. university and college faculty, and students in courses with the highest enrollment in the province, covering the “top 40 subject areas” (Applied Science, Biology, Commerce, Chemistry, English, etc.). Low cost print-on-demand hardcopies are available to those who prefer them. The publicly-funded BCCampus organization connects the expertise, programs, and resources of the province’s post-secondary institutions “under a collaborative service delivery framework” through use of information technology. <http://bccampus.ca/open-textbook-project/>

### **University of Minnesota Open Textbook Library**

The University of Minnesota is partnered with BCCampus in developing and promoting open textbooks. The Open Textbook Library already offers access to dozens of free, complete and openly licensed

textbooks in: accounting & finance; business, management & marketing; computer science & information systems; economics; general education; humanities & language; law; mathematics & statistics; natural & physical sciences; and social sciences. <http://open.umn.edu/opentextbooks/>

### **SUNY Open Textbooks**

Using the Public Knowledge Projects Open Monograph Press platform, State University of New York libraries established SUNY Open Textbooks with the support of SUNY Innovative Instruction Technology Grants. The initiative, launched in 2012, provides authors, students and faculty an editorial framework and service to publish open textbooks. The first pilot published 4 titles in 2013, with a second pilot to follow that will add more textbooks and participating libraries. Another tangible benefit of this type of project is that it helps create community of practice among libraries, and template institutions can adapt to suit their specific needs. <http://opensuny.org/omp/index.php/SUNYOpenTextbooks/index>

Forthcoming titles from SUNY Open Textbooks

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## Appendix 1 - CARL questionnaire:

### Open textbooks at CARL institutions

As defined by the BCcampus Open Textbook Project, open textbooks are an affordable, flexible alternative to traditionally published textbooks. They significantly reduce students' textbook costs while giving instructors the flexibility to customize materials for the courses they teach. A deliverable of the CARL Committee on Research Dissemination's current work plan is a brief paper on open textbooks. The following brief survey questionnaire is intended to help obtain a snapshot, as CARL librarians see it, of what the adoption of open textbooks looks like at CARL institutions.

#### 1. ) Name of institution:

#### 2. ) Is your institution piloting or participating in an open textbook project?

- Yes
- No
- Don't know

#### 3. ) And to what degree is your institution piloting or participating in an open textbook project?

- Initial adoption
- Piloting
- Full-scale support

#### 4. ) What role does your library have in open textbooks at your institution? [Select all that apply]

- No hosting
- Hosting a few open textbooks
- Hosting several open textbooks
- Participating in selection and adoption of open textbooks
- Involved in open textbook project

Leading open textbook project

Other, please specify...

5. ) With respects to the open textbook project in which your library is involved, please provide the following:

Name and URL of the project:

Brief description:

Include a few open textbook titles and their links:

6. ) Do you know of any faculty members who are adopting open textbooks at your institution (whether they're texts from your institutional initiative or not)? [Select all that apply]

No

A few

Several

OTs hosted by my institution

OTs hosted elsewhere

7. ) What has the uptake of the already available open textbooks been like at your institution?

Practically non-existent

Not sure

Faculty beginning to adopt OTs

Faculty starting to adopt OTs more frequently