

# Free is Not Enough

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## Editors' Commentary

*It is difficult to talk about open education without focusing on open education resources. Among the resources it is hard not to mention textbooks. Among textbooks, it is impossible not to discuss OpenStax. In this chapter, the authors—all of whom are affiliated with what is perhaps the best known open textbook publisher in the world—tell the story of OpenStax. In doing so they argue—as the name of the chapter implies—that merely being free is not enough to justify openness. They argue that high quality, course relevance, and instructor support materials are key elements of effective open education. They share the lessons they have learned at OpenStax regarding economic sustainability of OERs.*

## Introduction

OpenStax CNX, then Connexions, was founded in 1999 with three primary goals: (1) to convey the interconnected nature of knowledge across disciplines, courses, and curricula; (2) to move away from a solitary authoring, publishing, and learning process to one based on connecting people in open, global learning communities that share knowledge; and (3) to support personalized learning. OpenStax CNX has grown into one of the largest and most used

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OER platforms – each month millions of users access over 20,000 educational ‘building blocks’ and thousands of e-textbooks. In addition to web and e-book outputs, a sophisticated print-on-demand system enables the production of inexpensive paper books for those who prefer or need them, at a fraction of the cost of books from a conventional publisher.

This approach was widely hailed throughout the open education community, and other groups such as Merlot, OER Commons, and Orange Grove have followed a similar mission. Hundreds of thousands of learning objects were created, and these have been used by millions of learners. Mission accomplished – at least, that’s what we thought.

By 2008, it became clear that simply providing a delivery platform for course materials was not enough to increase access for the majority of students. Faculty who had the time, experience, and drive to make educational resources created these course materials. Although these resources reached thousands of students and no doubt improved access for many, it didn’t provide the widespread shift to access for all that OpenStax and others in the open community envisioned. This observation, coupled with the increasingly pervasive issue of student debt, forced the team to take a close look at our platform and ask questions about scalability, sustainability, and the future of access to educational content.

### *Rethinking the doctrine*

For the past several years, faculty have been asked to do more with less, their time stretched further each year. OpenStax found that the faculty taking advantage of OpenStax CNX were not the faculty who, in many cases, most needed open and easily accessible resources. The faculty that used OpenStax CNX the most were faculty who had time in their teaching schedules and were personally motivated to create resources and add them to the library. We needed to find a way to efficiently serve the majority of faculty – the faculty who do not have time to create educational resources or piece together quality resources from multiple sources. A good example is the adjunct instructor notified a few weeks – or days – before the start of the term that they will be teaching a course. We needed to serve this majority group of faculty so that we could reach our ultimate goal of improving access to education for all students while encouraging academic freedom. Free resources would not be useful to students if they didn’t meet the requirements established by the instructor.

Another factor we considered was that in highly enrolled courses, like psychology or college algebra, the curricula is well-defined and often doesn’t vary from school to school. Bearing this in mind, instead of expecting faculty to adapt and create resources, then adopt those resources, we shifted our tenet: adopt developed, high-quality resources, then adapt. By changing our assumptions, we were forced to reconsider the very nature of traditional open educational resources.

## OER 2.0

Once OpenStax developed a better understanding of faculty needs, we got to work addressing the shortcomings of the OER concept as it was then defined. With the end goal of helping as many students with the cost of textbooks as possible, we found four key deficiencies that we remedied with the release of a new library of free, peer-reviewed, professionally developed textbooks.

1. ***Free is not enough. Materials must meet the quality thresholds set by the community.*** OpenStax follows a professional development model and we are finding that our resources scale rapidly. Locally produced materials work locally because the author can provide context, in-class explanation, and supplemental problems. There is also a very good chance that local assessment and local content are well aligned. However, it takes teams of professionals, including authors, reviewers, development editors, graphic designers, and assessment experts, to develop resources that can be used at many institutions without extensive adaptation. This professional development model ensures the content meets quality thresholds set by the community of educators. The more complete and easy to use, the more likely a resource will be adopted. In just over three years, millions of learners across thousands of courses have used OpenStax materials. More importantly, a recent survey of 400 users indicated a re-adoption rate of 96.4%. Quality is sticky.
2. ***Meet standard scope and sequence requirements.*** Faculty have ever-increasing responsibilities and less time to restructure their courses around new materials, combine materials to create their course, or write their own materials. Creating resources that meet standard scope and sequence requirements significantly reduces the barrier for OER adoption because it takes faculty less time to adopt. Also, if faculty want to adapt the materials or add their own content, it is much easier for them when they have professionally produced materials to build upon. This practice also frees faculty to drive pedagogical reform such as inquiry-based approaches and flipped models, thereby enhancing academic freedom.
3. ***Improve discoverability.*** OpenStax CNX, like other OER repositories, is burdened by a surplus of content types. A 2014 Babson survey revealed that discoverability of complete course OER was a major hurdle in adoption. To improve discoverability, we positioned our peer-reviewed, professionally developed textbooks separately from OpenStax CNX, while still serving these textbooks via OpenStax CNX and making them available in the OpenStax CNX library. Our peer-reviewed textbooks are available at [openstaxcollege.org](http://openstaxcollege.org), where users can download a PDF, follow a link to the OpenStax CNX web view, or order a low-cost print option from Amazon or campus bookstores. This positioning has proved immensely

successful. In fact, one week in September 2015 garnered over one million unique visitors to [openstaxcollege.org](http://openstaxcollege.org).

4. ***Provide essential, additional resources.*** Faculty are accustomed to using additional learning resources such as presentation slides, solution manuals, online homework, and courseware to better manage their courses. This is especially true for adjuncts who often have very limited time to prepare for a last-minute course assignment or are asked to teach introductory survey courses that cover many topics beyond their specific expertise. To address this challenge, OpenStax provides these learning resources either directly or at a low cost through for-profit providers. One of the biggest complaints we had heard from faculty is that they don't like being forced to use a particular homework system because it's the only one paired with the book, so we partner with a wide variety of providers to allow the faculty to choose what is best for them and their students.

OpenStax addressed these issues, while retaining the best qualities of OER. OpenStax books are free and licensed under the Creative Commons Attribution International (CC BY) 4.0 license (except for Calculus, which is CC BY-NC-SA), allowing faculty the academic freedom to utilize the materials however they see fit, whether it be incorporating them into videos for a flipped classroom or adopting them as the primary text for the course. These titles are free, openly licensed, and add much-needed value for faculty and students everywhere.

A primary motivation for using OER is that it can help increase access to education for students. By addressing these four deficiencies, we intervened sooner in the OER creation process and made OER more useful and accessible for the majority of faculty as well as students.

## Sustainability

Creating a successful and sustainable model required us to evaluate the current market models. The case for positive disruption of the publishing industry is well documented; the current economic model is broken, student access is declining, and the price-to-value ratio of course materials is no longer sustainable. We found that digital rights management (DRM) restrictions and the lack of collaboration among providers in the market were two key factors that would reform the traditional, monolithic publishing model and pave the way for a successful, sustainable OER model.

### *Reducing the shackles of DRM*

Millions of OpenStax users have enthusiastically embraced the significant reduction in price and the lack of DRM restrictions on OpenStax content. The current DRM restrictions for most of the digital content sold today by

traditional publishers are simply not in line with the way students acquire, use, and share information. Current DRM restrictions come from a bygone era of ‘unidirectional’ information flow and often limit access to a period of days, the number of pages that can be printed, the number of devices content can be accessed on, and the sharing of information.

Fortunately, today’s learners have grown up on the web. The opportunity to network, access information, and share knowledge is limitless. Open resources remedy the shortcomings of DRM by allowing users permanent, unfettered, and unlimited access across multiple devices and platforms. Anywhere, at any time, in any format, the ability to share content provides a level of freedom that is igniting innovation and lasting change across the market.

We may look back on this early period and conclude that quality OER went mainstream not only because it was free, but because it provided much-needed freedom for students and educators.

### *A distributed ecosystem model*

It is now common practice for hardware producers and software producers to collaborate in an ecosystem to accelerate innovation and increase the use of their products and services. Traditional publishers, however, have consistently bucked this trend by turning inward and creating ‘one size fits all’ course materials through force of habit.

At OpenStax, we’ve found that the path to widespread student savings and sustainability also requires an emerging and vibrant ecosystem. Our allies in our ecosystem improve access, efficiency, and quality by:

- optimizing expertise rather than recreating expertise many times over;
- minimizing the cost to onboard faculty and students;
- improving quality and choice for the community, and;
- providing ongoing mission support fees to support the effort.

### *Optimizing expertise, not recreating expertise many times over*

OpenStax is highly efficient in many areas; however, we would definitely be inefficient in developing online courses, in the distribution of non-electronic product, on-campus marketing, and providing in-classroom response services without the help of our ally organizations. There has been a dramatic increase in the number of positive disruptors in the education industry over the last few years, including Sapling Learning, LrnR, Top Hat, Redshelf, and WebAssign, to name just a few. Even industry stalwarts like NACSCORP, RR Donnelly, and Wiley are looking to reinvent themselves. For example, NACSCORP signed an agreement with OpenStax in 2014 that allows NACSCORP to manage the

bookstore distribution of OpenStax textbooks. With support from their campus bookstores, faculty can now more easily adopt OpenStax textbooks, and students are benefitting from even lower print textbook prices.

These organizations recognize that incorporating OER into their products and services not only reduces their time to market (or their ability to retain existing customers), but allows them to make greater investments in tools that enhance learning. By leveraging OpenStax content, they are maximizing efficiency. These partnerships also allow OpenStax to enter markets without having to develop an entirely new set of competencies. A virtuous cycle of efficiency is created.

### *Minimizing user acquisition costs*

A user acquisition cost is the cost required to have a single student in one course use a resource for the first time. (It should be noted that even free resources have an associated user acquisition cost.) These acquisition costs are exceptionally high for traditional publishers; consider the number of marketing managers, sales representatives, and technology support staff that must be employed to drive adoptions. It is imperative that a non-profit reduce these costs to a bare minimum. By working with ecosystem partners, OER providers can instantly gain

- access to marketing and sales organizations;
- collaboration around social media engagement, and;
- customer contact information when permissible by end user agreements.

OpenStax does not have a sales representative, nor do we plan on hiring a sales force. However, our allies do have marketing groups and sales representatives, and we regularly collaborate with these groups on advocacy campaigns. This collaboration has contributed significantly in the market awareness of OpenStax. The cost to OpenStax has been minimal, but the impact has been priceless.

As more and more faculty adopt OpenStax, the tables are beginning to turn, and we are now able to introduce our base of users to our allies, reducing their customer acquisition costs. This lowers the price that students and institutions need to pay for the resources, perpetuating our cycle of efficiency.

### *Improving choice and quality for the community*

Why should faculty be locked into a platform that aligns only to a specific set of course resources? How rapidly can we move beyond one size fits all resources? The ecosystem model spurs choice by allowing the educator to decide which resources best align to their curricular goals. For example, in physics, we have

no fewer than four online homework providers. Each provider has unique attributes that work well for different student populations. The ecosystem is also a competitive market, spurring innovation while keeping end user costs to a minimum. In fact, the cost for OpenStax additional resource services is typically 65% less than comparable incumbent solutions. In the future, OpenStax may produce adaptive technologies offered alongside other applications in the burgeoning ecosystem; however, we will never assume a single choice model for the market because a virtuous cycle of competition benefits the community. Choice drives innovation and creativity.

### *Providing ongoing mission support fees*

Content that scales globally requires philanthropic resources. However, it is our responsibility to make sure we maintain our content and sustain operations. Our allies, who are rapidly increasing in number – greater than 40 organizations as of December 2015 – are excellent stewards of the community. Ally organizations realize that OER should be a taking system for students, and, as businesses they embrace the responsibility to give back when they achieve gains from using openly licensed content. If an educator chooses to utilize the high quality and affordable homework, courseware, or other solutions from our allies, part of the proceeds come back to OpenStax in the form of a mission support fee. In fact, mission support fees have already funded the revision of our sociology and economics texts.

## **Closing Thoughts and Summary**

The open community is wrestling with a supply and demand problem: there are not enough open educational resources suitable for the faculty that either already want to use OER or would be open to adopting OER once introduced. This supply and demand problem is a barrier to the ultimate goal of improving access to education for all. The model that OpenStax has adopted is a practical solution and enables widespread use of OER – not just for faculty with the resources to create it.

OpenStax development costs are an excellent example of the efficiency of this new model. Our content development and production costs are approximately 60% to 70% less when compared to the traditional publisher's model. While it is also true that our development and production costs are higher than the initial creation of locally produced materials, this does not take into account the full picture if scaling is factored into overall costs. Our cost-per-user is extremely low, which is crucial because it allows OpenStax to provide significant savings for a vast number of students. Locally developed OER has an important place in education, but it does not scale affordably and therefore make a significant impact on student access.

We are acutely aware that achieving scale is a dynamic effort and that the market is moving away from the traditional texts; however, the community will always demand effective content. Also, the way in which students interact with content is changing. At OpenStax, we are exploring not only ways in which students learn from our resources, but ways our resources can learn about students. We have teams of researchers investigating the most effective ways to integrate machine learning algorithms and to implement principles from cognitive science, such as spacing and retrieval practice, to improve student comprehension and retention of key concepts. For OpenStax, increasing access also carries with it the responsibility to improve students' return on effort so they are more successful in current and future courses. Thankfully, these current efforts are building on the high-quality, openly licensed content that we have already produced.

In summary, these are some of the tenets that have proven effective in creating scalable open content:

- Professionally produced OER that meets standard scope and sequence requirements has proven to scale effectively.
- Educators adopt and then adapt, not vice-versa.
- Any format, anytime, and anywhere drives usage.
- Affordable may need to trump free at scale, because not every resource can be free.
- A distribution ecosystem that reduces DRM and market costs and provides sustainability can spur virtuous cycles of quality, innovation, and affordability.

It is our mission as an organization to increase access to education for all, not just those with resources; this applies to faculty and students alike. 'Access. The Future of Education' is far more than a tagline. OpenStax is comprised of individuals who have different backgrounds and motivations for choosing this work; however, our binding quality is our pragmatic yet passionate approach to making significant gains in improving access. As members of the open community, we must create a future in our lifetimes where access for all is commonplace and a student is limited only by their aspirations, not the cost of their book.