

THE NEW LEARNING: DIGITAL TECHNOLOGIES AND POST-SECONDARY EDUCATION

A SYMTEXT WHITE PAPER

The way we learn is changing, and education needs to change with it.

The Internet, and its promise of an all-knowing, all-connecting body of knowledge, is changing both what we learn and how we learn it. Digital technologies are challenging publishers, threatening their traditional revenue sources. These same technologies are inspiring educators to teach in new ways, weaving a rich tapestry of content. And students, who've grown up digital, demand that their education embrace these new models.

Nowhere is this change more acutely felt than in higher education.

EDUCATIONAL PUBLISHING: AN INDUSTRY IN TRANSITION

The textbook industry's model is simple: In consultation with leading academics, write a textbook that contains the material for a semester's classes, complete with assessment questions and test problems; convince professors to adopt it; then make money from the sale of that book to classes at universities across the country.

It's a model that's been successful for decades. And it's one that's fraught with problems in a digital economy. This isn't news to publishers—and now [legislators](#) and technology advocates are adding their voices to the call for change in how educational content reaches students.

ONE SIZE DOES NOT FIT ALL

Textbooks are products of an industrial era. The cost of editing, designing, printing, and distributing them is amortized across a large number of identical finished goods. It's an economic model that has been brilliantly successful, helping to bring education to the masses and powering generations of students. But today the model is increasingly viewed through the lens of Henry Ford's famous declaration: "available in any color you want, as long as it's black." Textbooks are mass production, broadcast, and every other business model in which a large audience buys the same finished product.

Yet few professors teach the same class. What makes a professor unique is her pedagogical approach, reflected in her presentation and materials selection. Textbooks play an important role, but they're seldom a perfect fit. For students and professors, the economies-of-scale model means that textbooks are an anachronism in which they can have any text they want—as long as it's the one the publisher has chosen.

WOOD PULP ISN'T A BUSINESS MODEL

This disconnect isn't limited to textbooks. From music to journalism, any industry in which the product was information but the revenue source was something else—the sale of plastic discs, the dissemination of classified advertisements—is in disarray. As Chris Anderson, editor-in-chief of *Wired* magazine, explains in *Free: The Future of a Radical Price*, “College students can spend \$1,000 a year on textbooks. That’s a lot, especially since a \$160 biology text might have a one-semester shelf life, which is why the used book market is so large.”

One of the biggest challenges that publishers face is that their revenues remain largely tied to a physical product—a printed textbook—rather than to the learning experience itself. As Anderson points out, “In a class of 100 students, 75 will purchase the \$160 text. Each subsequent semester, due to the growing availability of used copies, sales can drop by 50 percent. By the fourth semester, five students might pay full price.”

Publishers have been worried about making their textbooks digital, fearing that electronic versions of course content will be copied. The reality, however, is that printed textbooks are not a good option for copy prevention, since they're easily re-sold. Forward-thinking publishers are tackling this dilemma by attaching their revenues to each semester's learning experience rather than to a one-time textbook.

THE UNREAD CHAPTER TAX

Publishers are in the information business, which is uniquely well suited to the bits of a digital world. But despite ongoing efforts, their revenues remain firmly entrenched in the atoms of printing and distribution, which puts them at the mercy of market forces threatening to make their business less attractive. To make money in their short lifespan, textbooks carry a high price, causing many students to seek out alternatives like used books and borrowing. As a result, students are focused on price and cost, and not on the quality of the learning experience.

In a digital and cost-conscious era, the mass-production model now represents a growing disconnect between what publishers offer and professors want. One response – frequent new editions – was the norm for years, but in a digital world where content can be updated without distribution cost, it's coming under increased scrutiny. Even when publishers don't rely on frequent revisions, textbooks are frequently sub-optimal because they don't fit a professor's individual needs. Those sections of a book that don't fit the curriculum remain unopened. This is an **Unread Chapter Tax**—an unintended consequence of mass production levied on learning using a one-size-fits all business model in an increasingly diverse and granular market. It forces professors to compromise on content rather than selecting the best material possible.

The Unread Chapter Tax is what every reader pays for content they buy, but don't use. It's a tax on learning—and one increasingly viewed as a subsidy for an out-of-date business model.

TRYING TO GO DIGITAL

Publishers know that physical printing is outdated. Many have responded with custom publishing offerings – based upon their own catalogues – that allow educators to select only what they need. This is only a partial response to the Unread Chapter Tax and the problems outlined above, as it misses the other point of the Internet: a change in the way we learn. And it cannot address the fact that a single course's content can come from multiple publishers, free resources, professors, and even students: we have moved beyond the generic, transmitted model of Higher Ed content. Ultimately, the professor needs to nurture a course's content and determine how the students learn.

CONNECTED EDUCATION: A NEW MODEL OF LEARNING

Professors are acutely aware of the promise the Internet holds. After all, universities are where the Internet began, and they're all about sharing knowledge. Professors have been giving their classes photocopies, library references, and journals for decades, seasoning the core textbook with additional information. The web has simply made this augmentation more powerful and more accessible.

Now, custom-built, digital course materials are poised to replace textbooks and coursepacks, becoming the core of classroom content.

BETTER CONTENT

Professor-aggregated content is better content:

- It's **more relevant** to the lessons being taught, tailored to each educator's unique style and methods and free of the unread chapter tax.
- It's **timelier**, because the Internet is current, unfettered by the process of printing, and distribution.
- It can come from **many sources**. No one publisher, journal, or website has all of the best content. While each of the major publishers might offer a biology textbook, for example, no one book has all of the best chapters for a course. This is why professor-driven aggregation is essential, and why professors rely on course readers they assemble in order to publish the material needed for a particular semester.
- It can be **updated more quickly**—after all, these are bits, not atoms—to reflect the latest knowledge or current events. By contrast, textbooks are often out of date as soon as they're printed.
- It can even be **adapted mid-semester**, as the professor learns what's going well and what needs additional effort.

3

This isn't to say that educators should abandon traditional content. Authoritative texts and peer-reviewed journals are the last word in knowledge, and crowdsourced online materials like Wikipedia are no substitute for the best the publishers have to offer. It's just that aggregation of time-tested classics alongside fresh insights represents the best possible course material.

MIXED MEDIA

There's another reason for augmenting formal course content with professor-aggregated materials. Learning today comes from many places, and in many forms. Video, audio, animations, interactive spreadsheets, presentations, and myriad other media offer a richer learning experience. By leveraging many content formats, professors can reach their students in multiple ways, improving the classroom experience. These formats simply aren't available in print.

Once, professors who wanted to provide their classes with multimedia content had to rely on the classroom to deliver it, or had to point students to the school's library where a limited number of media resources were available. No more. Digital technology and the ubiquity of the web means it's easy to point students to mixed media resource that can be accessed whenever and wherever it's appropriate.

INTERACTIVITY

Professor-aggregated content and rich media formats are compelling reasons for educators to embrace digital learning models. But the web enables another, more fundamental, shift in education: Interactivity.

Learning is a process of engagement. While published materials contain knowledge, a textbook does not make an education—otherwise universities wouldn't exist. Learning is dialogue, discourse, and discussion. It's trials and tests. It's questioning, debate, and ultimately, understanding. This engagement is why a connected society is fundamentally changing how we learn.

Knowing this, professors are inventing new ways to engage their classes. From being reachable via email to setting up wikis, blogs, and online lesson plans, today's classroom has a digital counterpart. Professors assign work, collect assignments, connect with students individually, learn from class feedback, assess student progress, and adapt to each semester's unique circumstances.

FROM COURSE MATERIALS TO INTERACTIVE LEARNING ENVIRONMENTS

It's not just the demise of one-size-fits-all content, then, that's changing how we learn. It's the rise of professor-aggregated, mixed-media content, and the interactions that can occur once professors and students can interact through that content.

Instead of static course content supplemented by other materials, we have interactive learning environments, each as unique as the professor, students, and content that comprise it. These learning environments are *emergent*—that is, they are created organically, a result of the interactions between professors, material, and students.

4

This emergent, interactive learning is good for everyone. Professors teach their courses in their own unique ways, delivering current, relevant content and engaging classes optimally. Students learn from the best material possible, and can interact with educators and one another. Publishers benefit, too: these environments are a new channel for their content that offers better margins—after all, bits are cheaper to move than atoms—and frees them from the used-book problem, since each semester is a unique learning engagement.

INTRODUCING THE LIQUID TEXTBOOK

Symtext's Liquid Textbook technology makes this possible. Liquid Textbooks are a way of aggregating course materials that can incorporate many content sources while still managing the rights of each content creator. With Liquid Textbooks, professors assemble, distribute, and adapt course content to each semester. A simple web-based interface makes it easy to gather the best content from a wide range of professor-generated, public-domain, and licensed sources, and then publish the results as a course reader tailored to each class. Professors can even set permissions for course outlines and share them with other educators once it's in the form of a Liquid Textbook. Consistent with those permissions, other educators can adopt and adapt Liquid Textbooks for their own courses.



FOR PROFESSORS, A WAY TO TEACH THE BEST CLASSES

Liquid Textbooks let educators build the ideal course. By assembling the best content available—current research, licensed chapters from the best books, journals, and online resources—in a simple format, professors can craft a living curriculum that reflects their unique pedagogy while covering the required material.

Once assembled, the Liquid Textbook becomes a platform for interaction and engagement, within which professors, students, and subject matter experts can explore and learn.

FOR STUDENTS, THE BEST CLASSES

In classes that feature Liquid Textbooks, students get the best learning experience. They have the optimal material, free from the Unread Chapter Tax, in a variety of formats that are portable, accessible, and better for the planet. Courses can include rich media, online resources, licensed journals, and selected chapters from the best text. Students pay only for what they need, and get direct access to the professor *within the context of the material*. The result is better material, better interaction, and ultimately, a better educational experience.

FOR ADMINISTRATORS, NEW OPPORTUNITIES

Many schools are exploring new ways of teaching. Liquid Textbooks are an excellent way to formalize course materials for distance learning, executive training programs, and other business programs. By helping each professor to craft a unique curriculum, the Liquid Textbook becomes a transcript of educational excellence that can easily be leveraged when developing new offerings.

At the same time, universities invest significantly in research journals and other library resources that aren't easily accessed by students. To overcome this, many course readers assembled by educators simply photocopy journal material and case studies—violating licensing terms and exposing the university to unnecessary risks. Liquid Textbooks can leverage a university's research subscriptions while respecting the terms of use of those journals. They can also provide analytical information to track which resources are being consulted, and which are neglected by educators' curriculums.

FOR CONTENT CREATORS, THE RIGHT WAY TO MONETIZE THEIR CONTENT

While Liquid Textbooks offer huge benefits for professors, students, and administrators, they're just as promising for publishers. By tying licensed content to use and interaction—rather than to the movement of physical copies or static, generic content—they stand to radically improve the economics of educational publishing.

In doing so, they revitalize the author-to-student connection. Publishers can focus on what really drives their business: finding the right subjects, enlisting the best authors, editing, illustrating, and verifying content, and publishing excellent learning resources. Unfettered by the long cycle times of printing and distribution, authors can revise their works more frequently, keeping them current and relevant.

Best of all, because publishers no longer need to defend against the used textbook problem, they no longer need to levy the Unread Chapter Tax or settle for mass-production economics. Publishers can now afford to offer content for specialized courses and niche markets, moving into what Chris Anderson has called the "Long Tail" of



publishing—content that would never be published in a mass-market industry is now readily available in a digital economy and represents exciting new opportunities for the content industry.

In short, Liquid Textbooks protect publishers' rights, improve the content they deliver, and offer new, higher-margin markets than they could otherwise reach.

THE ROAD AHEAD

Interactive learning environments like Liquid Textbooks are the future of education. They offer the best material, aggregated from the leading sources and hand-selected by each professor to suit his/her personal teaching style. They provide direct interaction between professors, students, and subject matter experts. They're more affordable, better for the planet, and available in a variety of formats that offer new opportunities for administrators. And they offer an economic model that supports authors and publishers, encouraging them to create and maintain rich content.

Consider some of the other ways that emergent, interactive learning environments will help education:

- **Peer sharing and review:** Educators will be able to share their personal curriculums with their peers, learning from one another and letting faculties showcase what's working best.
- **User-generated content:** Professors can attach student responses or research to the course material, recognizing exceptional work and helping to share it with the rest of the class. Often, such research and supplementary content from class participants can extend the learning experience even further.
- **Analytics:** By examining which parts of a digital book have been read—and which have been overlooked—professors can see which material needs review. Similarly, an analysis of which portions of the text provoke the most questions can provide publishers with insight into their content, and help authors to understand which parts of their text need clarification.
- **Student assessment:** Much as printed textbooks have study guides and review questions, so tools like Liquid Textbooks can be extended with third-party components such as assessment tools to verify that students have understood the material. In other words, when books become interactive, others can extend them.
- **Adaptive content:** Professors will be able to adjust their content mid-semester based on changing current events and the needs of each class.

6

Ultimately, Liquid Textbooks are a way for educators, publishers, and students to take full advantage of how we can learn in a digital world, improving education while providing a significant revenue stream for publishers.

ABOUT SYMTEXT

Founded in 2008, Symtext makes it easy for educators to provide their learners with exactly the right mix of digital instructional materials. Symtext offers a complete solution for educational content aggregation and distribution. Using the company's Liquid Textbook technology, educators can assemble and distribute rich course materials including public-domain and licensed content quickly, easily, and legally. The technology is also relevant to corporate learning and contract publishing businesses.

REFERENCES

Anderson, C. (2009). *Free: The Future of a Radical Price*. New York: Hyperion.