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Director's Brief: Self-Publishing and Multimedia E-books for Education

A new option in education

As schools and educational institutions adopt technology and look for alternatives to traditional textbooks for curriculum delivery, e-books and e-textbooks have become a viable option. Several approaches exist to meet the needs and expectations of those instructors with a specific vision who have been developing and managing their own content all along to those who are interested in embracing multimedia instruction but prefer the comfort of ready-made materials. There are options within e-publishing that allow for customization of both content and control.

Growing interest in the one-to-one computing movement in schools has called for more emphasis on classroom practice and less on acquiring devices. The idea is that if a school provides every student with a mobile computing device, such as a laptop, netbook or tablet, student learning will be enhanced. The problem is that the technology may not always be integrated into the classroom, and schools are left wondering why they spent so much money on such technology with little results to show for it (Goodwin, 2011, p. 79).

However, if an educator has been involved in the development of their curricular materials, along with the support of professional development in instructional methods that support digital learning, the one-to-one movement seems much more attractive. Teacher-developed (self-published) e-textbooks support this kind of thinking. As a technology-based

innovation, institutions will likely need to depend on school librarians or technology integrators to bring multimedia e-textbooks to their staff.

Benefits of self-published books for education

One of the primary benefits of the use of e-books in education is that they tend to be less expensive, especially if they are self-published by teachers. There are also “open access” options for e-textbooks, which can be used at no cost to the student or institution. E-books can be disseminated widely as digital formats can be copied and shared easily. In the realm of traditional paper books, if there are more students than books, schools are faced with the expense of ordering more or resorting to classroom sets that students cannot take home. The cost of loss or damage to a paper book can be a hard financial hit to families and school districts. E-textbooks don’t require the same money (or space) as traditional textbooks do.

If educators are involved in the process of authorship and aggregation of digital curriculum materials, they become stakeholders who are motivated to integrate technology in their classroom because they have intimate knowledge of the value of the course materials and they have customized to their own style. Traditional textbooks are rarely referenced cover-to-cover in a course; there is either not sufficient time or the content is irrelevant to the focus of the class. Teachers often have to jump around in a paper textbook because the organization is different than what has been established in the local curriculum. Often teachers feel the need to supplement their textbook with other resources because a topic may not be covered in enough depth or does not present multiple perspectives. An e-textbook can be formatted to include the important content material in an order that makes sense to the educator.

Furthermore, e-textbooks, especially multimedia e-textbooks, afford opportunities for differentiation and enrichment activities for students. If a student needs extra practice, teachers can hyperlink extra resources in one spot. If a student develops a passion for a certain topic, the teacher can provide opportunities for that student to do further exploration too. Instead of the linear format of a textbook that is meant to be read sequentially, an e-textbook can embody the exploratory character that has become part of web-culture. People are used to digital tangents as they click on a link in the middle of an article that takes them to a video. From there they read the comments on the video and experience multiple points of view. Curiosity often fuels our learning quests on the internet; why not bring that same curiosity to our classrooms?

The rise of e-books

Piotr Kowalczyk explains the history of e-books in a concise infographic that would suggest that this is not just some fleeting trend (2011). In fact, e-books have a 40-year history which began with Michael S. Hart's launching of Project Gutenberg. The first e-book was the United States Declaration of Independence. The first e-readers were released in 1998: Rocket Ebook and SoftBook. In 2002, Random House and HarperCollins began selling digital copies of their paper publications. The Amazon Kindle launched in 2007 with 90,000 e-books in the Kindle Store. Barnes and Noble released the NOOK in 2009 and Apple released the iPad with iBooks in 2010. 2010 was the first year that Amazon reported higher e-book sales than hard-cover sales. Apple's iWork Suite program Pages enabled EPUB conversion in 2009. In 2012, they followed up with a dedicated Mac application called iBooks Author.

E-book publishing in education

The publishing of an e-book requires some kind of mediating software that can convert the document into an EPUB, PDF or Amazon-friendly format (AZW, KF8 or MOBI) so that it can then be widely distributed for use on e-readers, tablets or computers. Not all devices are built to support the same format, so it is important to be aware of the audience of the consumer, that is, the students who will be reading and using these e-textbooks.

Lulu.com and Smashwords.com are gaining popularity in the self-publishing world of e-books. They even offer options for authors to pay for assistance with editing or formatting while keeping higher revenues percentages if they are charging for their book. E-books prepared at these sites can be marketed through major e-booksellers such as Amazon, Barnes and Noble and Apple iBookstore. Lulu also offers print-on-demand services. These are great options for someone who is looking to market and publish a text-based e-book.

Calibre offers a free, open-source application that allows e-book conversion, viewing and syncing for a large number of devices. It also distributes DRM-free (Digital Rights Management) Free e-books, not all of which are free of cost. The encryption restrictions on these books that prevent readers from choosing their device and sharing among devices have been removed.

Textbooks are expensive; the Student Public Interest Research Group found that the average price of the 100 top-selling textbooks was \$175 new and \$132 used (DiMaria, 2012, p. 51). Digital editions and open-access textbooks may be a solution. According to a study cited in the Book Industry Study Groups' *Student Attitudes toward Content in Higher Education*, 74

percent of students still prefer printed textbooks over digital versions (Chesser, 2011, p. 31), so digital versions would need to “pack a punch” and offer something unique to the learning experience if students are going to choose them. The Florida Distance Learning Consortium reported that students are interested in access to online practice questions, PowerPoint files, demonstrations, interactive assessments and video as study aids (Morris-Babb & Henderson, 2012, p. 150). Simply authoring an e-book without multimedia features is not enough to draw in learners.

E-book formats

E-books are being published in three primary formats: EPUB, PDF and Amazon-friendly formats (AZW, KF8, MOBI). There are others of course, but these formats are also the ones that are compatible with the majority of devices. EPUB are considered to be the industry standard and can be read almost every e-reader (Griffey, 2012a, p. 18). Indeed, most self-publishing platforms for e-books out there right now seem to be geared for EPUB creation. However, it is important not to ignore the importance of the Amazon and its Kindle products as they dominate the e-book market in sales—60% as of April 2012 (Streitfeld, 2012—and there are self-publishing platforms for Amazon too.

Some authors prefer PDF files for their e-books simply because they control the appearance of the formatting and they don't have to worry about an e-reader changing how it looks. For example, children's picture books lend themselves to PDF formats because they have lots of illustrations and non-traditional text placement. If the text in the PDF has been converted with optical character recognition, or OCR, it is possible to search the document for

single words or exact phrases. The downside is that these “page-fidelity” or “print-fidelity” e-books cannot be adjusted to accommodate a reader’s preferences for font size, margins or line-spacing, like “reflowable” EPUBS and Kindle Books can.

In the case of traditional hard-cover textbooks, PDF files seem to be appropriate formats too, just because of the density of text or diagrams on each page. Both of the major e-book sellers, Amazon and Barnes and Noble have created e-textbooks that take advantage of some of the more adjustable features of reflowable e-books (where text size can be adjusted) while maintain the rich formatting and layout of the original print editions. Amazon calls them Print Replica Kindle books; Barnes and Noble calls them NOOK Study eTextbooks. Some of Apple’s iBooks for iPad are also like this. These e-textbooks allow for annotating and highlights, searching, copy and pasting, zooming, linked table-of-contents and word lookup. As William Chesser points out in his chapter of *Library Technology Reports*, “they require little change in teaching behavior to be used in the classroom (so professor adoption is less stressful)... (so there is no real classroom innovation, and learning is not necessarily enriched)” (p. 33).

The time-commitment, however, to create a non-PDF e-book is much more involved and requires special software, whereas nowadays PDF-conversion is often built right into most word processors. It is the multimedia potential of the “other kind” that is gaining attention and popularity for instructional use in schools.

E-book creation in education: two models

Unfortunately, when it comes to multimedia e-textbook publishing, there aren’t a lot of options quite yet for the self-producer. Once a book is converted into EPUB format, multimedia

e-books tend to get messy with CSS fragments and inconsistencies (Caldwell, 2012, p. 74). Since it can be a time-intensive process, as well as requiring some facility with computers, it is important to provide flexible options.

Pizzeria Uno Deep-Dish Pizza Model: For the instructor who is interested in developing and creating content from scratch

These users typically have their own content prepared and a pretty clear idea in their head about how their curriculum looks and what instructional practices are necessary for their students' success. They typically struggle with finding one definitive textbook resource because "no one seems to do it right." This is the kind of teacher who may have been issued a textbook by their department and keeps it available for students as a reference, but prefers to supplement and present materials their own way.

Apple has two options for these kinds of potential multimedia e-book authors: iWork Pages 2009's export to EPUB feature and a new Mac application launched in early 2012 called iBooks Author. Both programs work with templates that drive the formatting of section markers to create a responsive table-of-contents for the user. Pages starts with more of a formatting guide template on a blank slate, while iBooks Author does a bit more leading. iBooks Author has quite a few additional options for themes and templates available through the App Store, both free and paid, whereas Pages leaves the creative look of the e-book entirely up to the author.

The main difference is the file format produced. iBooks Author is likely to produce a seamless finished product with multimedia that is optimized to work for sure on an iPad via iBookstore 2. In fact, the iPad is the only place that it all of its features can be accessed and

viewed; no iPhones, iPod Touches or Mac viewing. Apple has chosen to create a new filetype with this application called .ibooks, instead of opting for the EPUB standard. There is the option to save an iBooks Author book as a PDF or plain text, but at that point, all of the interactive features become static—thus defeating the purpose of choosing this tool for its multimedia capabilities. Additionally, the EULA of iBooks Author requires that books being sold for a fee only be marketed through Apple, though they may be distributed for free elsewhere.

Pages is a bit more clunky and demanding on the user, especially when it comes to previewing and testing final products. While iBooks Author has a preview feature built right into the program, Pages requires the file to be exported as an EPUB and then synced with the iPad or e-reader. Obviously, since Pages creates EPUB files, other tablets and color e-readers such as Barnes and Noble's NOOK should be compatible along with the iPad.

Papa Murphy's Take-N-Bake Pizza Model: For the instructor who prefers the comfort of ready-made materials

Some educators probably will not be interested in the amount of flexibility that the Pages and iBooks Author options afford. They simply may not be interested in customizing the look of an e-book to this extent, nor have enough original content that they feel is important to aggregate in this form. Access to Mac hardware is also a limiting factor, since both programs require a Mac with OS X 10 Lion or Mountain Lion to use them. Maybe computer-provess is not this instructor's strong point. In these situations, open-access textbooks that operate under a Creative Commons license may provide a viable alternative.

CK-12.org is a non-profit foundation in California founded in 2007 that provides educators with options to self-author or customize open-access content into e-textbooks called

FlexBooks. Students can read them online, print them or access them from Kindles, iPads, NOOKs and more. Course materials currently exist for STEM (Science, Technology, Engineering and Mathematics) subjects, but others like History and English are growing too. The text, video and images available have been reviewed by college professors, high school teachers and other experts and standards-aligned. Educators simply pick and choose which topics and multimedia materials, including practice activities, that they would like to include in their FlexBook, choose an order, add additional content if desired and then publish it. The system processes the publishing request and sends the creator an email with a link to the final product for download.

Also worth considering for the higher education crowd is a platform called [Flat World](#). Created out of demand for more affordable college textbooks, professors began banding together to create their own open-access textbooks. Flat World is a product of this movement. It works in similar way to FlexBooks, where college instructors simply drag and drop, delete and edit their content.

Considerations before adopting a self-publishing e-textbook model.

If a school has adopted a standard device for all students, such as an iPad, the choice of file type and e-publishing platform is a bit simpler, since they do not have to worry about choosing a file format that is compatible with different devices—one is enough. Schools that subscribe to the bring-your-own-device policy face bigger challenges, not only because they will need to be sure that their e-textbooks are formatted for multiple types of devices, but they may also need to consider how to address the digital divide of users who do not own their own technology.

It is very possible for an instructor to create multiple file types, catered to the users in their classes, but in reality, the time-commitment necessary to create an all-inclusive variety of formats to accommodate all student devices may be too much to handle, not to mention the frustration of working out bugs that pop up in the conversions. The learning curve on multiple-publishing may also be overwhelming. Therefore, as instructors are forced to pick and choose their level of investment, the richness of the experience for students will vary.

Some e-book readers or viewers are unable to play video or audio or even show color pictures. If internet access is not always available or if bandwidth is limited, hyperlinking will be stifled. The students with access to devices for which the e-textbook is optimized will have a different experience and more opportunities than the students who are limited to reading on a black-and-white e-reader or a basic online EPUB reader that cannot support advanced multimedia features.

In some cases, an instructor may not feel the need to provide multimedia texts for his or her students because the readings are primarily text-based (such as in the context of a literature course). This instructor's students may not struggle as much with access or compatibility, since plain text is simpler to publish and can be read on color or black-and-white screens. One could argue though that the opportunity to employ e-textbooks is wasted on such a teacher because even literature can be enhanced with images, videos and interactive features.

Annotations

Creating ePub Files with Pages

<http://support.apple.com/kb/HT4168>

Apple's support page provides help, tips and templates for users looking to create their own multimedia EPUB files from scratch.

Apple's iBooks Author hands-on (update: video!)

<http://www.engadget.com/2012/01/19/apples-ibooks-author-hands-on/>

Engadget Magazine's Daniel Cooper offers a hands-on tour of iBooks Author, complete with video so that the user can see the application without actually using it.

CK12.org

<http://www.ck12.org/>

The CK12 Foundation allows educators to create and edit their own FlexBooks, which are open-access standards-aligned e-textbooks, primarily focused on STEM fields.

DIGITAL Classrooms Take Flight

District Administration, October 2009

An early look at real K-12 schools who have successfully implemented one-to-one computing programs and the e-textbooks they have incorporated in their curriculums. The teachers discuss how these methods have transformed their teaching into something more effective.

E-Readers Now, E-Readers Forever!

Chapter 3 of *Library Technology Reports: Gadgets and Gizmos: Libraries and the Post-PC Era* from April 2012.

Jason Griffey explains the differences between current e-readers and the file types they support. This is useful to understanding how e-books actually work, especially when trying to publish one.

The E-textbook Revolution

Chapter 5 of *Library Technology Reports: The No Shelf Required Guide to E-Book Purchasing* from November/December 2011.

William D. Chesser takes a comprehensive look at the background and development of e-textbooks and offers best practices in the field.

Flat World Knowledge

<http://www.flatworldknowledge.com/>

Flat World is a higher education open-access e-textbook publishing platform with resources for business and economics, humanities and social sciences, professional and applied sciences, mathematics, and sciences.

iBooks Author Fashions Multimedia Texts

Macworld, February 3, 2012

Serenity Caldwell discusses the evolution, strengths and weaknesses of Apple's multimedia e-book application, iBooks Author. She is free with her criticisms and analysis, which makes this article a useful tool when considering iBooks Author as a self-publishing platform.

Off the Shelf: Exploring Open Access E-textbooks

Booklistonline.com, April 15, 2010

Sue Polanka gives a one page review of the movers and shakers in the open-access textbook movement. She also offers some ideas for how libraries fit into this picture.

Putting Apple's iBooks Author Through its Paces

The Sebold Report, February 12, 2012

Rose Rossello investigates iBooks Author and its functionality by testing it out herself. She also offers some handy tips and considerations for those who are considering the technology.

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