

Open Textbook Authoring Tool Recommendation

Open Textbooks: A web first approach

While the technical goal of the project is to produce "textbooks" in a number of technical formats (HTML, PDF, Print on demand & epub), our approach to content development is to enable a "web-first" production process that emphasizes creating well structured HTML content that can then be transformed into other formats, as opposed to creating other formats that can then be transformed into HTML.

There are a number of reasons to adopt "web-first" thinking for our workflows and publishing procedures.

- The underlying technologies which drive the web (HTML, CSS, Javascript) are stable and well supported when compared to the technologies used in eBook publishing.
- Web browsers are familiar technologies to our primary users (students & faculty) compared to eBooks.
- The web is much more device, platform and format agnostic compared to many of the current eBook development and publishing tools.
- There are tools to transform well structured HTML content in many other format types that will work in eReaders.
- The web has much broader support across platforms and devices for multimedia content than the current standards of eBooks allow.
- The web is flexible enough to allow for additional experimentation in ways to extend the notion of what a "textbook" is.

On this final point, the very notion of what a textbook is is changing. More resources are being made which are web-enabled first, print enabled second to take advantage of the affordances of the web. And while new technical formats and devices are emerging to support the publishing of eBooks (which are self contained and discrete packages of content that require specialized devices or software such as Kindle, Kobo, iBooks, etc to read) the area of eBook publishing is under incredible churn and lacks the types of standardization that the web has developed over the years. While eBooks are an important output component to this project, they still present barriers for users.

- eBooks require third party readers
- standard formats (such as epub) are not supported by all eReaders
- fully interactive eBooks are very often platform or vendor specific and are not universally accessible on all devices and platforms.
- epub2, while making features such as flow-able text possible, does not offer much additional functionality beyond what a well constructed web based version of a textbook does.
- the epub3 standard, which will make an eBook a much more interactive and media rich experience, is not fully supported by many of today's epub readers.

Finally, affordability and access to learning resources are the primary drivers of this project. While the web does have barriers, it still provides the most affordable, accessible access to learning resources when compared to either eBooks or print books. This supports the notion that the open textbook project support a "web-first" approach to content development.

Recommendations

To meet this goal of producing textbooks that support a web-first publishing workflow, I recommend the following:

- To proceed with PressBooks as our primary textbook authoring platform.
- To maintain a close relationship with OERPub and Connexions and monitor the development of those authoring platforms.
- To remain open and flexible to support experimentation of other tools as may be suggested by faculty & authors taking part in the OTB project while remaining mindful that internal resources to support these type of experimental projects is limited. Therefore, we should both encourage, but limit, the number of experimental projects outside of PressBooks that we support.

PressBooks and our requirements

While PressBooks does not meet all of our requirements, there are numerous benefits to PressBooks. First addressing our specific requirements, PressBooks;

- produces a well formatted website for each book,
- provides a very clean user interface experience that works well across many mobile devices (tablets & phones) & standard web browsers,
- outputs to ePub (2), print-ready PDF, and XHTML (both as a website and as zip package), as well as mobi (Kindle), InDesign and WordPress XML,
- has web based authoring with an integrated WYSIWYG editor (TinyMCE) which can be extended
- has a fairly intuitive user interface that should reduce the difficulties for faculty in creating content, especially for those who have used WordPress before,
- is fully open source and, while the business model for sustainability is evolving, does have an emerging user and development community committed to the project,
- supports open licenses,
- provide a print ready PDF document that can be exported to a Print on Demand service,
- has version control for content,
- with the web version, produces a table of contents that stays with the student regardless of what page they are on & provides quick navigation around a book,

- allows for book specific metadata, and
- can be made citation ready with third party extensions, such as Dublin Core and COinS extensions.

Additionally, there are other benefits and possibilities that choosing PressBooks enables, including:

- a separate website for each book and discrete urls to content in the book which faculty can use to direct students to specific pieces of content in a book,
- some integrated social features which allows sharing of content on social networks,
- the support of vibrant WordPress OS community and ecosystem for additional plugins and functionality,
- is fairly lightweight in terms of technical hosting requirements and should be sustainable and supportable by a fairly small technical team,
- some collaborative authoring capabilities based on user roles,
- partnering with a project team that has proven to be approachable, responsive and flexible to our needs.
- BCCampus also has in house expertise with WordPress and the underlying technologies, meaning we can actively participate in development of both the plugin and the development community.
- there are also a number of institutions in BC already using WordPress in some capacity and by choosing a platform built on WordPress allows BCCampus to become active participants, contributors and leaders in the development of a robust WordPress community in BC higher education.
- finally, supporting PressBooks means we are supporting a Canadian based WordPress based development project.

What PressBooks is missing from our requirements

- HTML 5 output
- Import from Word & HTML
- Robust collaborative authoring features, although a book can have multiple authors, concurrency and real time collaborative editing are not supported.
- Textbook specific features.

PressBooks future development: our "to do" list

1. Mechanism to put Creative Commons license on every post/page for all output formats
 1. ePub export creates a copyright page (need to be able to customize this)
2. Unlock the locked export directory. Output file types (PDF, ePub) need to be publicly available. Current architecture locks away ePub/PDF documents.
3. Search contents of a book on the web hosted version (PDF and ePub readers have search capabilities built in)
4. Re-theme the opentextbc.ca home page
5. Video embeds render in the web version, but export to other format strips video out. Need to replace with a link to video.
6. Improve Math support (ideally support for MathML, but at very least work with MathJax/LaTeX which relies on shortags which works in browser, but print plain text in ePub/PDF exports)
7. Develop textbook-specific themes (for web, ePub and PDF output and, perhaps other export formats) including styled asides, pullquotes, info boxes, Q&A, Learning Outcomes, and chapter summary (these requirements will need to be gathered based on research into existing textbooks)
 1. Modifying the TinyMCE editor to add some of these features
8. Import from HTML
9. Import from Word
10. Index feature for ePub/PDF that creates an index and:
 1. puts it at the end of an ePub/PDF
 2. is linkable in ePub/PDF
 3. added index automatically to ToC
11. Glossary requirement
 1. compiled into page at the end of an ePub/PDF
 2. is linkable in ePub/PDF
 3. added glossary automatically to ToC
12. Create a standard PDF output that support Print on Demand workflow (may require modification to PressBooks)

Other platforms

Other platforms that were looked at for authoring included:

Connexions (and OERPub)

While Connexions is a powerful platform that meets many of our requirements, there are some limitations to considering it as our primary development platform

1. It is a US-based hosted service which would require a Privacy Impact Assessment to be completed which may affect the timelines of the project.
2. The current user interface is confusing.
3. Licensing is limited to CC-BY.

However, there are many reasons to stay closely connected to Connexions, including:

- an upcoming release (Fall 2013) of a new Connexions platform that greatly improves the platform including:
 - A more robust set of import and transformation tools for remixing content, made possible by OERPub.
 - A textbook specific front end editing tool (again, OERPub) that is user friendly and has textbook specific features built into the toolbar.
 - Native HTML 5 output.
- OpenStax College project, which is an offshot of Connexions and is currently producing some very high quality open textbooks.
- A library of existing openly licensed content that can be easily incorporated into textbooks we author.
- These are OER and open textbook projects that are being driven and directed by academic institutions, and there is some value in being closely aligned with other academic projects.

BookType

Also an Open Source project that is very similar to PressBooks in terms of features and useability, the primary reason for not choosing BookType is the lack of internal knowledge at BCcampus to support the project. The product is built in Python and PostgreSQL and, while we could develop the technical expertise to host our own instance, it would be an additional barrier that could delay the project.

Mediawiki

MediaWiki does have some plugins that can output ePub and PDF documents, but the website does not provide a mobile friendly reading environment which is, perhaps, the biggest drawback of the platform. It works too much like a web page in a mobile device, compared to the mobile reading experience of PressBooks. Additionally, editing wiki content may prove to be a bit trickier for novice users than using a WYSIWYG editor. Mediawiki also lacks native book metadata features, although these may exist within the Mediawiki ecosystem. However, we may want to make this available for some to experiment with, specially for those who may wish to support multiple author content creation where the content changes are extremely dynamic (ie - student created textbook that may change from year to year) or for a project that wishes to remix a book from the WikiBooks library.

Other tools

We also briefly looked at other authoring and publishing tools including AcademicPub, Active Text, DynamicBooks, Habitat (by Inkling), Open Monograph Press (from SFU), Pandamian and Annotum. Cursory reviews of these platforms showed that they were not suitable authoring tools for this project for a number of reasons. Of these tools, Pandamian appeared to be a potential contender and have the output capabilities we were looking for. Like PressBooks, Pandamian is an extension of WordPress. However, testing of Pandamian produced errors on ePub, mobi and PDF outputs. And while the tool empathizes ease of use with a sparse, stripped down user interface and limited feature list, it is a bit too stripped down for our use case.