Jisc Institution as E-Textbook Publisher project

Technologies: Developing

1. University of Liverpool / Liverpool University Press

**Essentials of financial management**

Essentials of Financial Management requires a high level of interactivity, including the ability to manipulate graphs and tables. After an exhaustive search of open source software, Liverpool have ascertained that the newest version of Xerte will provide the functionality required for the e-textbook. There is existing Xerte expertise in the Library and both the E-Learning Unit and Computer Services Department have some knowledge of the programme.

The Xerte Project provides a suite of award-winning open-source tools for e-learning developers and content authors producing interactive learning materials. The tools are in use in institutions and organisations all over the world, with an enthusiastic community of users and an active team of developers working to bring new features and enhancements to the software. With the release of v2.0 of Xerte Online Toolkits, content can be delivered to any device removing the dependency on the Flash Player. A new responsive template enables authors to deliver content to all devices, from an iPhone to a large desktop computer, and the Xerte Online Toolkit now contains over 75 templates for presentation and interactivity.

**Using primary sources**

Using Primary Sources: A Practical Guide for Students, on the other hand, is a strongly visual e-textbook and will make extensive use of archive materials. For that reason, Liverpool have opted to use BiblioBoard, purchased by the University of Liverpool Library through a JISC purchasing agreement. BiblioBoard Creator makes it easy to share digital collections of primary source material and locally created content with other libraries and individuals around the world in a sophisticated multimedia environment. In one streamlined process, with minimal resources, libraries and their patrons can create both web-based and mobile products for scholars and consumers.

Libraries using BiblioBoard Creator can opt to share their Anthologies freely with the world, share with libraries and charge consumers, share within a consortium, or share with only their own patrons and sell to all others. In this instance, Liverpool envisage making the e-textbook available entirely free of charge.

**Technological specifications and user**

**Essentials of financial management**

The Xerte e-textbook builds on the author’s experience teaching the largest module in the University, and will utilise quizzes, charts, graphs and other materials already used in VITAL (BlackBoard) in addition to extensive lecture materials tailored to the module. Xerte is a mature platform developed in a leading university and has been through several iterations to ensure optimum functionality.

**Using primary sources**

The BiblioBoard e-textbook will provide outstanding visuals of primary source material integrated with the written guides from a wide range of academic experts and refined by teachers and a
publisher. BiblioBoard has its origins in the promoting the visibility of archival content and thus lends itself to the dissemination and discussion of primary source material.

Reusability, accessibility, interoperability and durability
The e-textbooks will support multiple uses through multiple devices in multiple environments, including VLEs by being reusable, accessible, interoperable and durable as follows:

Reusability
- Both Xerte and Biblioboard creators have advised that the platforms will meet all required specifications in terms of functionality.
- In addition, the open accessibility of the books and the commitment of the authors to update (in particular History’s wish to update and potentially expand further) should ensure these are widely and consistently used.

Accessibility
- Both Xerte and Biblioboard are suited to support multiple uses through multiple devices in multiple environments: ‘With the release of v2.0 of Xerte Online Toolkits, content can be delivered to any device removing the dependency on the Flash Player. A new responsive template enables authors to deliver content to all devices, from an iPhone to a large desktop computer, and the Xerte Online Toolkit now contains over 75 templates for presentation and interactivity.
- The University of Liverpool Computer Services Department and the Centre for Lifelong Learning (home of the VLE) both confirm Xerte and Biblioboard will work with the VLE.
- Both Xerte and Biblioboard are endorsed by JISC. The former has grown out of Nottingham University and includes numerous features designed with accessibility in mind. A full list can be found here.

(In Liverpool case study 2014, pages 9-10)

1.1. Liverpool University Press blog post ‘E-textbooks technology: BiblioBoard’

Design is very important to BiblioBoard, which ensured the collections always looked professional and were user friendly with clear sign-posting. In addition to this, accessibility was of utmost importance and BiblioBoard’s collections can be viewed online both on and off campus on computers, iPhones, iPads, Kindles, Nexus tablets, Android tablets and phones. We knew that if the resource was easy for students to access on whatever device they had and looked modern and professional, then there would be more engagement. From the beginning, BiblioBoard seemed perfect for this project and with the e-textbook now complete (although more chapters are continuously being added as this is a living e-textbook), we are delighted with the result.

A major feature of BiblioBoard is the zoom-in facility on the documents and chapters, allowing students to analyse primary source material such as fragile hand-written letters and rare medieval manuscripts in exceptional detail. This not only ensures students have invaluable access to primary material at easy reach but crucially supports visually impaired students. If an institution isn’t subscribed to BiblioBoard, then their students would still have access to the collections that have been made available on an Open Access licence, such as Using Primary Sources. However, if an institution has purchased BiblioBoard, then additional features are available to students and academics such as their own login, saved favourites, bookmarking, personal notes feature and a download content feature.

(In https://etextbook.jiscinvolve.org/wp/?s=BiblioBoard)
2. University of the Highlands and Islands and Edinburgh Napier University

Technological specifications and user needs

This project will use the Amazon Kindle platform, which has the following functions across all apps:
- Zoom
- Feedback
- Help
- Bookmarking (annotating)

Microsoft Word will be used to write the initial document prior to upload as this is the format preferred by Amazon. Adobe Photoshop will be used for image manipulation and editing.

(In UHI Case Study 2014, page 10)

Designs for the second eTextbook companion materials, using WordPress as the frame, began to be considered towards the end of 2015. The team observed that the process of creating these would closely follow that of the eTextbook itself, duplicating its chapter structure and compiling elements of video, image and collaborative discussion, to support the reader. A strand of work progressed through 2016, which drew together authors and the designer, and which proposed and sourced content for the materials from within both academic institutions. Three companion sites have now been created – one each for the eTextbooks and one higher-level portal site. The designer has actioned a number of amendments to the online sites in 2016 which include:
An Amazon call to action link at the top-right of the front page
A link to Kindle apps for ALL devices (i.e. Kindle for PC, Kindle for MAC)
A ‘register to join the discussion’ section added at the bottom, to encourage discussion
Integration of social media account login (Facebook, Twitter, Google, LinkedIn)

(In eTIPS end of year report 2016, page 17)

Has the technology you selected enabled you to meet the expectations of your users?

In the main, yes, although the project recognises a breadth in the range of knowledge, and therefore in expectation. Most students and academics at Edinburgh Napier University and UHI are close to electronic resources, their reading lists likely to promote them, their libraries making them available.

Preliminary results from our initial survey suggests that a significant number of students read their module’s primary text in a digital format, mostly on a laptop, and top five titles needed for their modules are almost entirely read digitally. These titles are either free, shared, or bought for a nominal price, with some cited as being from the library’s digital collection. Some are less familiar with the technology, or show unwillingness to engage with it, academically.
The process of downloading and reading a Kindle eBook is not outlined at either partner institution and is quite different than the process they go through to read most academic texts. There is a sense that many students and academics use Kindle for fiction and for some non-fiction.

The accompanying web materials are designed to feel intuitive and easy and familiar to navigate. A multimodal approach to engagement has been chosen to appeal to a broad set of users – video and audio, text and image. The community aspect of the web materials has not yet been used – discussion forums remain empty, which may suggest that readers do not seek engagement. There may be a requirement, in the online environment, for continual monitoring of activity by someone in
an administrator role, and certainly a need to ensure ongoing maintenance, but the team are aware that this is impinged by available ongoing resources.

Those readers more experienced with electronic texts expect an advanced reading experience, and are more familiar with a range of functions of a Kindle eBook. Whilst there is certainly some further evaluation work to be done around identifying expectations, and associated iterative change to our publications, for the majority of readers the simple design of the eTIPS eTextbooks appears to meet expectations.

(In UHI annual report 2016, pages 22-24)

3. UCL

Digital development

We have in the meantime signed our agreement with YUDU, who will develop the e-textbooks and create an app for publishing them. They are building the app shell now and will also review the first draft of the text when it is received from the authors, in order to review the functionalities that will be needed.

YUDU are a well-established company that specialises in the development of digital books and apps for educational publishers, and whose clients include Cambridge University Press, Wiley, Bloomsbury and Profile Books. This provides a great deal of reassurance as we are dealing with a known quantity, and a tried and tested product.

Their YUDU Publisher app allows readers to access multiple titles in one app, on any device, and readers can download titles to their device for accessing offline. The push notification feature of the app lets readers know when new titles are published or when new editions of existing publications are made available, which makes marketing any updates very easy. Both online and offline reading is tracked, giving the publisher comprehensive feedback on which resources are being used. They offer customised features such as animations, videos, quizzes and audio, but most importantly for our audience, readers can also highlight, take notes and bookmark pages, and these activities can be synced across devices. Because the system is based on PDFs, it also has the advantage that page numbers in the app match the printed book, so that in the lecture environment all students will be ‘on the same page’! During the production process, the books will be tested by students and teachers alike, to ensure that all functionality is operating correctly and to ensure that feedback about features can be incorporated during the build.

The books are created using a platform that means they can be updated, revised and added to on a regular basis, which gives considerable extra flexibility over the printed book. For the Plastic Surgery textbook, revision and development will likely include the addition of completely new chapters as the MSc course develops, or even an entirely new spin-off textbook on one of the chapters, which has never been the subject of a specialist textbook.

(In UCL Annual Report 2015, pages 1-3)

4. University of Nottingham

Applied Ethics
The content creation of the Applied Ethics e-textbook closely followed the content creation and publication plan set out in the funding proposal submitted to JISC. A plain text version of the etextbook was authored by the academic team and passed to the Learning Technology team to construct the e-textbook. The process went smoothly both from the academic authoring perspective and technical team perspective.

Production and Publication

Multiple versions of the e-textbook were created, some for distribution through the Smashwords website which allows readers to download e-textbooks in multiple formats; and one for distribution through the Apple iBook store which would contain many images and some interactive elements. Using this approach meant there would be three main file formats that would need to be considered in addition to a plain text version. The three main formats were:

- iBook
- Mobi
- Epub

Each of the three main formats have their own set of standards and principles that the learning technology team needed to be aware of.

iBook

- An iBook has a fixed layout with a specific height and width
- An iBook can only be viewed on Apple devices such as an iPad
- An ibook can contain interactive elements
- The iBook store will accept iBook’s up to 2 GB
- Accessibility options are disabled for an ibook due to its fixed nature
- Text size, font’s and colours cannot be changed by the reader

Mobi

- A Mobi version is required to view the book on an Amazon Kindle
- Mobi is more restrictive in its design and style capabilities than iBooks and Ebub
- A Mobi is reflowable in that text is displayed fluidly on the device and can be altered by the reader for preference
- Capable of basic illustration imagery

Epub

- An epub is the most universally compatible file format for ebooks
- The core technical requirements for this e-textbook were for the title to be:
  o Available on multiple devices, allowing users to follow a ‘bring your own device’ approach to accessing the book.
  o To be available as a free download under Creative Commons Licence to both Nottinghamregistered students and the general public
  o To link to polls that would ask readers’ questions about each subject area covered in the book

Reflowable text versus fixed widths

As a part of the research into this project, the project team weighed up the pros and cons of creating eBooks that were reflowable or based upon a fixed width layout. A reflowable eBook is one in which
there is no set widths or sizes of elements, with both text and images displayed inline and its styling very much being set by the device or software in which it is being read on. The benefit of a reflowable eBook is that the content will always fit the display of the device regardless of screen size and orientation. The downside is that this format lacks the possibility for a fully designed book and is not suitable for graphic intense projects.

A fixed width eBook is one which has its layout designed in a way similar to a printed book, with elements positioned on to a page with an exact precision. For this to be possible, the pages of the eBook must have a particular width and height set. Fixed width eBooks can be much more visually impressive, containing graphics and interactivity, however, problems can arise in the accessibility of the books over a number of devices with varying screen sizes, ratios and orientations.

An Apple iBook created using the iBooks Author software, by default produces a fixed width layout iBook to display only on an Apple device. Amazon’s comparable e-textbook software is the Kindle Textbook Creator, which similarly creates fixed width books in its KF8 format to be viewed on the Kindle Fire range. A fixed width ePub can be created using layout design software such as Adobe InDesign.

As the works for the Applied Ethics project were primarily text based with only a small amount of interactivity, the project team concluded that the reflowable versions in addition to the fixed width iBook was still the appropriate way to proceed. This meant the project followed the original production plan specified at the outset of the project. The choice of aggregator, Smashwords, did not support the KF8 format but instead supported Mobi for Kindle devices which are not capable with fixed width layouts. This would result in two options available to readers of the book based upon their preferences and also give the University a reasonable means by which to measure those preferences for the decisions made on future projects.

(In University of Nottingham annual report 2016, page 7)

**Corporate Responsibility & Sustainability in Practice**

The content creation of the Corporate Responsibility & Sustainability in Practice e-textbook somewhat followed the content creation and publication plan set out in the funding proposal submitted to Jisc.

A plain text version of the e-textbook was authored by the academic team and passed to the Learning Technology team to construct the e-textbook. A number of videos, audio and interactive elements were also created by the academic team, and a number of third party sites and services were also suggested. The creation of the content was completed over a longer time period than originally planned and a number of different authors were allocated sections to work on.

At the outset of the project the technical solution for the creation of the e-textbook had not been fully defined. It was indicated by the project team that a similar approach to the Applied Ethics etextbook would be followed in that the expectation was that an epub version and and iBook version would be created. However, as the e-textbook would be offered using a freemium model, the project team needed to investigate whether these tried and tested methods would be suitable for a freemium approach. Another factor that needed to be investigated was whether Smashwords, iBook store or other e-textbook platforms could allow access to some of the content for registered Nottingham students only, as this was a key requirement set out by the business school.
The full set of requirements that needed to be accommodated for the Corporate Responsibility & Sustainability in Practice e-textbook were:

- Control of access to different content and functionality for several different user groups
- An ability to capture and display learner responses
- An ability to update the content
- Interactive elements
- Video elements
- Audio elements
- PPT elements
- The need to provide a downloadable work booklet for MBA audience
- The need to restrict University of Nottingham (UoN) created case studies to Nottingham only audiences
- The need to control colour scheme and cover artwork
- Must meet the expectations of the ICCSR who licenced some of the content to UoN for the e-textbook

After much investigation, it became clear to the project team that existing ‘off the shelf’ e-textbook creation and publication software could not satisfy all of the requirements set down by the Business School. To move the project forward it was decided that Xerte on-line toolkits would be used for the all e-book development.

Rationale for Choosing Xerte

An Apple iBook would have allowed the Learning Technology team to include rich media and most of the proposed interactivity, however, due to the amount of videos and presentations, the file size would have been very large. We considered hosting videos on a server that would be streamed through the book; however, this would cause problems for those viewing the book offline, or the potential risk of high data charges for mobile devices connecting through 3g/4g networks who may assume that all content was embedded within the book.

Another problem was that Apple iBooks limit the audience to Apple devices, as well as the difficulty finding a vendor for sale of the ibook for a UK seller as the University only has a ‘free’ apple ibook account and the potential tax reporting burden of setting up a ‘paid for’ apple ibook account was deemed too onerous for just one title. If a number of titles were being considered and a revenue stream could be proven, this may be viewed differently. Additionally to this, data capture and displaying of that data is not possible in the iBook software, beyond what is provided for note taking natively within the device.

Publishing the e-textbook as an ePUB would open up more options for the commercial aspects of the book, however, there are much stricter standards for ePubs which would of made most interactivity difficult and would require a stripping out of multimedia to keep its file size within the limit. A website would have allowed us much more control over content, interactivity and access, however, development would be much more extensive and would also require ongoing maintenance and cost. Creating the e-textbook in Xerte allowed for the benefits of displaying the content like a website, with the additional benefit of a content management system which already sits on a server and is maintained and supported by the University Learning Technology team. Xerte was capable of the interactive elements, displaying rich media and controlling access as well as satisfying the other core requirements.

(In University of Nottingham annual report 2016, pages 15-16)