Vol 5 | Issue 3 (2017) | pp. 64-74

JOURNAL OF
Perspectives in Applied Academic Practice

www.jpaap.napier.ac.uk

Exploring the University as an e-Textbook Provider of Scholarly Work

Frank Rennie, Keith Smyth, Gareth Davies, Scott Connor and Laurence Patterson,
University of the Highlands and Islands, UK

ABSTRACT

Despite the growth in the popularity of e-textbooks, there has yet to be adopted an effective model through which an academic institution can easily re-purpose the scholarly output of its staff to allow global and affordable access to students. This paper describes a research project designed to explore effective processes for the university to become a digital publisher of its own academic output. The project produced two e-textbooks, focusing on using Amazon Kindle for distribution, each book with a free companion website of open access learning resources. The use of the e-texts and the websites were then monitored for evaluation. The publication process was documented and will be made publicly available in the final report on the JISC website. In summary, the pre-publication tasks are almost identical to the production of a conventional printed book, but at publication, everything else changes. The e-textbook system minimises the problems of storage, distribution, pricing, and updating which is faced by the printed book. The companion websites provide a global space with resources complementary to the e-book, which can be updated without the requirement to amend the e-textbook. Several different categories of e-books have been identified, from short handbooks for internal course use, through open-access textbooks, to flagship commercial publications. It is recognised that these e-publications may replace or co-exist with both printed books and companion websites.

Keywords: e-textbook; in-house publishing; OER; Kindle; easy-access

Introduction

As e-books become more prevalent in society at large, there has been a corresponding growth in interest relating to the use of e-books in higher education (Reynolds, 2011; Chesser, 2011, Muir, Veale, & Nichol, 2009). The recent academic bibliography is large, and this paper does not attempt to give a comprehensive literature review, but it is necessary to give a brief summary in order to understand the context of the current study. The literature cited below can form a source for further readings.

Publications in academic journals over the past few years have concentrated on four main aspects of e-books in the educational sector. These can be divided as 1) studies on the presumed future of the relationship between printed books and e-books; 2) studies on the use of various e-book reader devices and their comparisons to conventional experiences of reading printed books; 3) studies on user behaviour with e-books; and 4) studies on the management of e-books in (academic) libraries.

Early attempts to analyse the possible future role of e-books were necessarily speculative, and frequently used language implying tension with more traditional forms of publishing (Daniel & Woody, 2013; Rockinson-Szapkiw, Courduff, Carter, & Bennett, 2013; Van der Velde & Ernst, 2009; Grudzien & Casey, 2008; Lynch, 2001). As a result of these early investigations, some effort was applied to separate the myth from the reality of e-book adoption, concisely reviewed by Gall (2005) and attention was also turned towards the various devices through which e-books were being accessed (e-book readers). In a review of e-book research during 2010, Kumbhar (2012) found several substantial inconsistencies in relation to their usability, accessibility, and the business models for their distribution. As with Gall (2005), Kumbhar (2012) highlighted the problem of making e-books accessible to readers, with challenges due to the incompatibility of e-readers, the pricing structure, copyright and ownership, and the (in)ability of libraries and publishers to adopt a hybrid model allowing users access to both printed and e-book formats. Graydon, Urbach-Buholz and Kohen (2011) reviewed different models of textbook distribution using a variety of considerations. The issue of easy accessibility to the e-book text is particularly relevant for specialised academic and minority-interest books as these commonly incur high unit costs for printing, storage, and distribution, yet frequently they have very small print-runs. With subsequent studies, accessibility also began to be considered not simply from the Gutenberg model (Hart, 1992) creating online libraries of digitised out-of-print books, but also from the perspective of open textbooks (Prasad, Totaram, & Usagawa, 2016; Hilton and Wiley, 2010) and specifically those books first-created in electronic format to encourage a wide readership unconstrained by purchase-price.

Despite the fact that many studies surveyed small sample populations, a number of articles began appearing in the academic literature looking at the user experiences of e-books (Nie, Armellini, Witthaus, & Barklamb, 2011; Stone & Baker-Eveleth, 2013; Lam, Lam, & McNaught, 2010). As the e-book format and e-reader devices began to become more compatible, two types of device emerged to provide mass engagement with readers (the Kindle and the iPad) and these became the main focus of e-book usability studies (Richardson & Mahmood, 2012; Gibson & Gibb, 2011; Qian, 2011). These, and other articles (Lai & Chang, 2011; Pattuelli & Rabina, 2010) explored the factors which encouraged readers to use e-books and e-book readers, and concluded that, for many users,

convenience, compatibility with working practices, and the media richness of the new format, all contributed to readers' acceptance. The latter authors noted, however, that "the social and cultural impacts of e-book reader use in everyday life have received little attention" (p. 229) and that "findings indicate that there are conflicting priorities between students, faculty, and librarians regarding e-books." (p. 229). Subsequent studies have also investigated the increasing sophistication and suitability of e-book features (Schomisch, Zens, & Mayr, 2013) and student attitudes (Weisberg, 2011) with e-book systems as part of electronic reading strategies (ChanLin, 2013; Foasberg, 2011).

The practicalities of using e-books in academic libraries has also been a point of focus in the literature (Walters, 2013; Ashcroft, 2011: Armstrong, Edwards, & Lonsdale, 2002) and numerous difficulties noted with acquisition, access, and use of e-books by both students and staff (Cook, 2011). Many of these difficulties relate to restrictive licensing and availability options imposed by the publishers. These, and other studies (Muir & Hawes, 2013; Croft & Davis, 2010; Shelburne, 2009; Safley, 2006) have explored the way that students (and staff) use e-books, particularly in relation to the use of printed books. There is a general consensus that, while e-books have become hugely more accessible and more popular, there are a number of systemic restrictions, such as open or limited access, digital rights management, and the ability to own or share e-books, which restricts a more general uptake of e-books for education. Opinions vary on the preference for e-books or printed books, and also on the need for better information on the availability and access to e-books through academic libraries, as well as through public libraries and individual ownership by students (Stone & Baker-Eveleth, 2013). There are also contrasting views on the need to train students and staff to discover and use relevant e-books, particularly since it has become common practice to access academic journals using similar electronic platforms, with one report noting that "users should not need to be trained to use an e-books platform, no-one receives training to use Amazon!" (JISC, 2009, p. 37).

The e-tips project

The increased availability and ease of use of e-book publishing and distribution tools has seen an upward trend in self-publication of texts by authors, and the establishment of a growing number of small scale e-book only publishers. As an extension to these developments, the potential of in-house production of academic e-books within universities has begun to be explored. In the UK, a significant programme of research and development work – under the banner of the 'Institution as e-textbook publisher' – is currently being funded by the Joint Information Systems Committee (JISC) for the UK academic sector. JISC have been at the forefront of e-book developments in UK higher education, and supported early thinking and strategy formation through their e-books working group in the early part of the last decade (Edwards, 2002). More recently, JISC carried out the 'Challenges of ebooks in Academic Institutions' project (Chad, 2013).

The Institution as e-textbook publisher programme is a three-year initiative, running over 2014-2017, that is funding four project teams from UK universities to investigate the viability of producing their own e-textbooks. The fundamental question the programme seeks to address is: "Will the institution as e-textbook creator help students by providing a more affordable higher education, and promote a better, more sustainable information environment for libraries, students and faculty?" (Jisc, n.d.). The scope of this paper is to consider the publishing processes which a university will require to undertake, rather than investigating the implications of e-publications for learning and teaching, which will be the subject of a subsequent article.

The e-tips (e-Textbook Institutional Publishing Services) project is one of the four projects being taken forward within the above JISC programme, and is a collaborative initiative involving the University of the Highlands and Islands and Edinburgh Napier University (Rennie, 2016). The other three projects in the programme are being conducted by the University of Liverpool, University of Nottingham and University College London (UCL).

In common with the other projects, e-tips is being tasked with producing two e-books for students that have a cross-disciplinary relevance, and through doing so developing and applying a business and licensing model to support the distribution of affordable texts. However, each of the projects within the JISC Institution as e-Textbook Publisher programme is developing a different business model that involves distinct approaches to the production of the e-textbooks that they are producing, and utilising different e-textbook publishing formats and platforms as the means of distribution. The business models, publishing tools and formats being used across the four projects include Xerte, HTML 5, and PDF, with distribution platforms including Amazon Kindle, Biblioboard, Smashwords and iBooks (see Fig. 1)

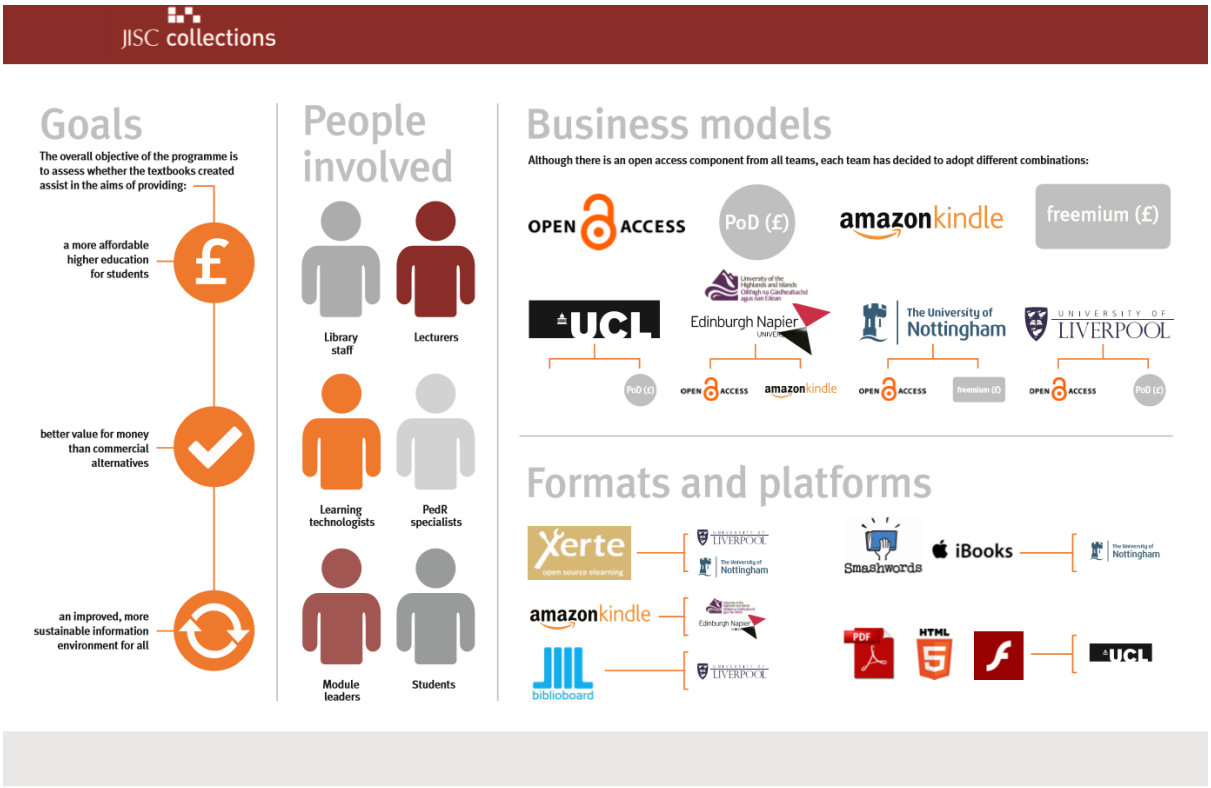

Figure 1: Source https://www.jisc-collections.ac.uk/institution-as-e-textbook-publisher/

It is also a requirement of the four projects to harness Open Educational Resources (OER) and open education practices and approaches in the production and/or distribution of the e-books. Once again this is being done in a diverse range of ways across the projects, with open educational resources – and open access to specific resources – being used in combination with Payment on Delivery (POD) and Freemium access to specific content and resources.

A key requirement of all four projects is to evaluate and report back on the processes, impacts, viability, and lessons learned in relation to the approaches taken and the e-textbooks produced.

In meeting the funding requirement to produce two e-textbooks for students that have a multidisciplinary relevance, the e-tips project has opted to produce two e-books to support students in undertaking undergraduate and postgraduate research projects. The texts being produced by the other projects address subjects including financial management, applied ethics, public archaeology, corporate social responsibility, and reconstructive surgery.

The first of the two e-books produced by e-tips, published in September 2015, focused on writing a research dissertation. The second e-book, published in July 2016, is focused on designing and undertaking research projects. These e-books are intended as sources of 'essential guidance' for getting started, and are positioned as 'road maps' and as reference texts that students may initially be directed towards when they first engage with the challenge of undertaking and writing up substantial research projects, including undergraduate and postgraduate dissertations. There is an ongoing debate about the high costs of academic books, making them unaffordable to many students, and various types of e-books have been explored as alternatives (Acker, 2011). The e-books produced through the e-tips project have deliberately been set at a low-price, intending to be affordable for students globally, and both e-textbooks are complemented by free companion websites with further resources, including openly available educational materials, in the form of further readings, tutorials and videos.

The e-tips project also set out to harness free and openly available tools in producing the e-books, but selected Amazon Kindle for distribution due mainly to the popularity and coverage of the platform, but also because of the wide availability of Kindle reader apps for different devices. The first book was *How to write a research dissertation* (currently having had around 2700 downloads) with a companion open website at http://www.etextbooks.ac.uk/dissertations/

The second book (currently with 1300 downloads) was *Undertaking your research project* with a companion website at http://www.etextbooks.ac.uk/index/project/undertaking-your-research-project/

The project also experimented with different approaches to authoring the e-books. The first e-book was authored by two of the project team, before being proofread, edited and prepared for publication and distribution. The second e-book involved a small team of writers who produced original material, as well as working with relevant content from existing research methods modules and courses within the two partner universities. The intention in taking two quite different approaches to authoring each e-book was to

better understand the challenges and opportunities, including implications for the publishing process, in commissioning original material versus re-purposing relevant content that already exists within course materials and digital educational resources of the university.

In seeking to investigate the overarching question of the 'Institution as e-textbook publisher' particularly the affordability, viability and sustainability of universities producing their own e-books, the e-tips project involves a multifaceted, longitudinal evaluation and research strategy. This was constructed around quantitative approaches to analyse patterns of distribution and engagement with the e-books, and qualitative approaches focused on the experiential dimensions of the work undertaken. The latter has included the perspectives of the authors and the wider project team relating to the demands and opportunities involved in building institutional capacity and expertise in e-book publishing, and also the experiences and views of students and academics who have engaged with the texts.

Analytics

The main area of interest at the middle stages of the project was user engagement, specifically the sales downloads of the books and engagement with the companion websites. It was predicted that three factors would affect this; 1) the ease of access, 2) the visibility of information and marketing, and 3) the momentum needed to be generated and maintained in order to create a critical mass that will keep the site current and alive. Statistical data from the companion website was collected using Google Analytics. Sales data for the e-textbook was collected from Amazon Kindle Direct Publishing (KDP). Google Analytics has the facility to collect a wide array of datasets that can be used to improve search engine optimisation (SEO) and marketing. In addition, it is possible to explore, in detail, the audience demographic and behaviour. Data from Kindle KDP is restricted to sales and Kindle Edition Normalised Pages (the pages read by users of the Kindle Owners Lending Library and Kindle Unlimited). This section covers findings from Google Analytics as the data from KDP is covered in the section on evaluation.

What does the data show? Unfortunately Google Analytics is susceptible to attacks from 'ghost spam', the effect of which is to contaminate the data. Once the unwanted data was filtered, the data revealed some interesting facts about the site (Table 1).

	EBook 1	**EBook 2**
Publishing date	14/09/15	21/07/16
Statistics during free week		
Availability Dates	**09/11/15 – 15/11/15**	**26/09/16 – 30/09/16**
eBook sales	2,265	1,288
User sessions	3,997	755
Users	3,351	683
Page views	16,397	2,816
Returning visitors %	22.6%	15.4%
New visitors %	77.4%	84.6%
All time statistics since publication		
Sales	2,265 (free) + 427 (purchased)	1,288 (free) + 65 (purchased)
User sessions	11,118	1,653
Users	8,327	1,222
Page views	41,769	7,425
Companion site demographics: Sessions by user locations		
Primary	UK 6,597	UK 1,409
Secondary	SA 1,434	US 31
Tertiary	US 501	CAN 28
Age		
18 – 24	33.99%	15.94%
25 – 34	29.82%	26.81%

35 – 44	19.74%	19.57%
45 – 54	11.62%	29.71%
55 - 64	4.82%	9.97%
Gender		
Male	45.57%	51.01%
Female	54.43%	48.99%

Table 1: Access statistics for e-tips e-textbooks

The majority of the users were located in the UK, with South Africa representing the next largest cohort. When the number of unique users/visitors is compared to the number of users who created an account and logged onto the companion website it is noted that the conversion from visits to account creation (password registration) is extremely low. Four possible reasons might explain why the conversion rate is so low. Firstly, the requirement for prospective users of the website to register online to create an account adds an extra layer of complexity for the user, thus introducing a barrier to website engagement. Secondly, the user may simply have wanted to see how the website looked. Thirdly, the users did not realise there was an option to create an account (misleading web page design). Fourthly, the users may not have seen any real benefit in creating an account, perhaps because the potential benefits were not made explicit. The lack of conversion from total browsers to actual website users is extremely important for engagement on the companion website, as the logged-in users were intended to form the catalyst for a 'community of practice' (Wenger, 2011) which could subsequently contribute a rich interactive component to the website.

The requirement to create an account was initially added to the companion website in order to prevent bots from spamming the discussion groups, however on hindsight it may have been better simply to add a spam control measure, such as Captcha, to each discussion post. A review of the account creation/login process is currently being undertaken and the possibility of logging in with an existing Facebook or Google account is also being investigated in an attempt to encourage more users to join the website.

More positively, once visitors reach the website, they actually spent a significant time browsing the pages. The bounce rate of visitors (the proportion of the visitors leaving after the first page visited) was very low at just 2.56%. The average page view is 4.28 per user, however one viewer (from Lesotho) viewed 38 pages, and three viewers (from Algeria) averaged 28.33 pages. Analytical data indicates that of the total visitors, only around 27% return. The apparent lack of opportunity to contribute comments and/or content may be one limiting factor. Paradoxically, however, the lack of people contributing to the site, hence giving the impression that the site is not dynamic, may also be a significant factor.

As expected, the promotion of the book as a result of conference presentations and direct marketing had an immediate and observable effect on book sales, and subsequently a similar effect on visitor numbers to the companion website. One week in November (13th – 19th) stands out as a particularly clear example, as during this month the book was made available free of charge on the Amazon platform and publicised through academic networks. During this one week, 2169 copies of the book were downloaded. Within a month after the book was launched, it had become the most downloaded educational e-book on Amazon; with the addition of the downloads during the free week, it briefly became the second-most popular non-fiction e-book on Amazon. The prominence prior to and during the 'free' week was directly responsible for the majority of the new users to the companion website (5557 arrived at the site). The second book also quickly secured the No. 1 one place for e-books being downloaded from the education section of both Amazon UK and Amazon US (also scoring highly in the non-fiction e-book downloads for both markets).

In summary, analysis of the data indicates that many people who buy the book visit the companion website, but are not being converted to active participants on the website. This is a concern for the proposed operating model of the existing and future sites (e-textbook + resources on a continually updated companion website). It was hoped that a 'community of practice' would evolve around the website, however this may require a different (more open?) model of user engagement, and the use of a password registration requirement to access the websites has now been discontinued. This is a continuing element of the research and the information being gathered will be used to inform future developments.

Evaluation of use and impact

With external user engagement examined elsewhere in this paper, a further strand of on-going work across the e-tips project will offer commentary on the impact of the approaches taken for the academic classroom.

Not unusually, both the University of the Highlands and Islands and Edinburgh Napier University acquire and make available a very large number of electronic resources. In the case of Edinburgh Napier this is articulated as a response to a number of factors including the demands of space management, to a rationalisation of subject portfolio, and to consortia acquisition arrangements (Montgomery, 2000). This manifests as a strategic vision to seek to acquire an electronic version first, the paper version second. There is the perception of a clear benefit to the emerging student demographic whose learning occurs from a distance, outside of the physical environment of the university campus(es) (Ruo & Xiaotang, 2013). With its physically distributed geographical structure, the University of the Highlands and Islands places a priority on the flexibility of online access to learning resources for students and

staff. Both institutions, too, value a culture of innovation, where module leaders are encouraged to recommend reading that is electronic over physical. Evidence suggests that student research habits are affected if they are exposed to an environment of electronic resources (Van Scoyoc & Cason, 2006)

The e-tips project wrote to all module leaders – around one hundred in total - who taught on postgraduate research-based courses in Edinburgh Napier University and the University of the Highlands and Islands, with a view to understanding whether an e-textbook created 'in-house' could successfully be integrated into the curriculum design. A number of respondents had already downloaded the project's first publication, but were not aware of the companion open website. Throughout 2016 and 2017, the evaluation team will continue to collect survey data on the use and value of both the e-books and the companion websites by students and staff, and talk with module leaders to understand their perception of how both elements have been integrated into patterns of study.

Data currently being collected are from surveys, distributed to both lecturers and students via Edinburgh Napier's NOVI online survey tool. Lecturers will continue to provide qualitative data, such as reasons for choosing the titles on their reading list, as well as the perceived pedagogical benefits of e-texts. Quantitative data looking at the proportion of e-texts and hardcopies on the readings lists, is also being scrutinised, as well as the range of price levels allowable on reading lists when the text is not freely available in the university library. Student surveys have examined their engagement with research/dissertation hardcopy texts and e-texts and indicate, at this early stage, that students have become increasingly familiar with and accepting of the equivalent electronic version. The quantitative data catalogues the source, cost, and format of each student's top-five texts used in their module, which have been entered into a matrix allowing this to undergo statistical analysis. The qualitative data asked the student to compare the usefulness of their top five texts and describe what they feel makes their favourite text useful. As part of the student survey, respondents were asked if they were interested in a free copy of the project's e-textbook. Review copies were distributed on a first-come-first-served basis, and after 30-60 days, those students received another survey asking them to evaluate that specific text.

The viability for both universities of the continuing development of localised authoring and publishing processes is currently being examined. With a clear interest from both universities in the methodology chosen, the project provides academics with an initial perspective on a workable low-risk solution. In-house publishing is a concept not unfamiliar to Edinburgh Napier, where the Scottish Centre for the Book, based at the Merchiston campus, publishes through the Merchiston Press imprint, managed by students on the MSc Publishing programme. More recently, the Business School have invited chapter submissions from colleagues across the University for the publication in print and as an eBook called Innovations in Learning and Teaching.

At the conclusion of the project, taking account of analysis of production, publication and impact, the e-tips model is intended to offer not only a commentary on activity across the project, but also to illustrate a potential pathway for other academic institutions wishing to explore the viability of institutional publishing for themselves. The evaluation team are engaged with the authoring and production team to explore the issues that have challenged the process, and the production model. The lessons learned will be made publicly available on the JISC website, (JISC, n.d.) and will contribute to the ongoing dialogue towards the transformation of the learning experience.

Discussion

First and foremost, it should be noted that this research project was established to investigate the key factors which would encourage universities to become more effective e-publishers of their own scholarly materials. The production of the e-textbooks and the monitoring of their subsequent uptake, was simply the vehicle to facilitate the process, and the lens through which the production processes could be viewed.

Several key issues were prioritised in the planning of the product. Firstly, it was important that the finished e-textbooks should be affordable and accessible to students. This might seem obvious, but several of the team were particularly aware of the high price of academic books, and the difficulties faced by many students (and staff) in developing countries to have access to textbook suppliers. There was some discussion among the team about whether the e-books should be free (e.g. in an open access repository) or priced (and whether the price should aim to recover production costs, or merely tokenistic). After some discussion, it was agreed that the e-textbook should be approximately the same price as a common smartphone app, (currently around £1.99) and that any other relevant information (including the project data and reports) should be available open-access on the web. Other universities in the JISC project opted for different variations of this (e.g. free e-book and a charge for the companion web-based resources). Some key considerations were:

- An impression that users paying (even a token amount) for the e-book, placed more value on it than a free resource.
- That the production of a book manuscript would either be added-value by re-purposing work already substantially completed (e.g. resources for a course, or edited articles already written) or that in the case of a commissioned book, the cost of producing a manuscript would be based on the perceived value of the e-book to the university (e.g. release from teaching duties or the value in terms of institutional branding and esteem).
- That universities normally do not have in-house expertise for the distribution, retail and global marketing of e-publications, and therefore controlling this through a third-party is an attractive option.

In this project, the favoured solution for distribution of the e-textbook was to publish through Kindle Direct, thereby dealing at one stroke with the management of global distribution, local pricing, and global digital management rights (DMR). Although this means

that the books themselves are not open-access publications, the deliberately low price and access to the mass market was felt to be a good compromise to secure maximum impact for students. For the purposes of this project, an early decision was also taken to choose a generic theme for each e-book, primarily in order to ensure a longer-lasting relevance for the e-book, but also to ensure a relatively wide, cross-disciplinary application of the texts. The Kindle Direct software also automatically provides details of downloads and other user analytics. To counterbalance this long-term perspective, it was decided to host a companion website for each textbook, with the aim of providing open educational resources to supplement the e-textbooks. The advantages of an open-access website are that it can be updated regularly with new resources, and that it can be opened-out to link to relevant educational resources which may be hosted on other institutional websites. The companion websites were hosted with an ac.uk (higher education) domain-name on the UHI server, thereby allowing easy user-data analysis. We required users of the companion website to register (freely) in order to monitor the usage, but in retrospect this may have inhibited the website use.

An early encouragement by Jisc (the funders) to be experimental and innovative in the production process needed to be balanced by the ease of the production process and the ability to both sustain and up-scale the initiative by the end of the three-year project. In practice, the experience of this project is that the pre-publication stages for e-textbook publication are almost identical to the paper-based equivalent. To begin with, there needs to be an author who has the ability to write effectively, and who has a good story to tell. There then need to be clear guidelines for the submission of a manuscript, detailing the requirements of font type, font size, and relevant formatting, including the form of medium for submission (e.g. which word processing software is acceptable.) For the purposes of the project, it was interesting to observe the time-challenges involved in writing the manuscript for the book, but post-project, when the e-textbook publication is tested in action, this issue ceases to be a major concern, for three main reasons:

- In normal production mode, the work of the production team does not commence until a manuscript is actually submitted for consideration.
- The cost of producing a manuscript for consideration is likely to be at least partially defrayed by inclusion in the normal day-to-day work of an academic, with the manuscript being an additional output by re-purposing other work.
- In the situation where the university might specially commission a manuscript from a particular academic, the cost of producing this manuscript will vary with the consideration of the length and complexity of the book, the pay-grade of the invited academic, and the length of time allocated by the institution for writing. All of these factors will be determined by the perceived worth of the final publication to the institution – in terms or utility, reputation, income or brand enhancement.

The normal processes of peer-review (a reader's review on the quality of the text) and proofreading (quality check on spelling, grammar, and formatting) are almost identical to the process for printed books, but may be unfamiliar roles for mainstream academic or support staff. After these tasks, the whole publishing model changes.

Whereas the paper-based book requires printing, transportation, storage, then distribution to retailers and readers, the e-book simply requires a method of distribution to readers. The decisions taken at pre-publication stage mean that when the button 'publish' is clicked, the e-book is made globally available within 24 hours (usually much less). There are some remaining complications, however, which can be summarised into three main categories. Firstly, there will be readers who will choose not to download the e-textbook because they prefer a printed version, and while 'print on demand' is becoming an option, it is not yet a commonly available service (though the project may experiment with this if time is available). Secondly, although the e-textbook itself is inexpensively priced, the cost of the e-reader may be prohibitive for many potential students. The e-textbook can also be read on a laptop or desktop computer, but this may inhibit the mobility, the convenience and perhaps the functionality of the resource. Thirdly, the ability to download from the web may be restricted in less-developed regions due to poor bandwidth and because of credit card limitations on web services. Most importantly for this project, the decision to self-publish the e-textbooks, whether as Kindle publications or in other e-book formats, will have significant implications for academic libraries (Cook, 2011). This is partly because their stock procurement system tends to purchase 'packages' of e-books through corporate suppliers (which favours the suppliers' selections) and also because the current e-book licencing system legally restricts the ability of libraries to purchase individual e-books then make them available to borrowers. For the reasons above, the e-tips project chose to by-pass academic libraries and make the two e-textbooks available directly to students through Amazon Kindle. The large number of downloads globally appears to justify this choice as a successful distribution strategy. Nevertheless, it leaves the question of acquisition of the e-textbooks by academic libraries as a currently unresolved issue, and this is a subject which will continue to be explored in the later stages of the project.

Although the user experiences of these e-textbooks and their companion websites are being monitored and independently evaluated, and although the number of downloads is far in excess of expectations, it is still too early to report on the overall response from students and staff, but this will be a feature of a subsequent article. On the other hand, although we must include the caveat that this is an ongoing and experimental research initiative, we do have clear indications about the author experiences for this model of publication. It has become apparent that clear guidelines, stylesheets and templates for all stages of the e-book are required for the efficient processing of the manuscript after submission. In contrast with a conventional publishing house, tasks such as effective proofreading are not normally common employment within a university, unless it already has an in-house publishing service, although peer-review is a more familiar task and may be easier for the university to accommodate this within the production model.

Early experience with this project has shown that the absence of established style guidelines and publishing procedures within the university allows a more flexible and iterative approach to publishing deadlines, and while this enables a more intimate and continuing involvement of the author(s) in the process, it needs to be tightly controlled to avoid micro-management by diverse

participants, thereby slowing the publishing process down. Once the manuscript has been accepted, conventional publishers normally allow the author(s) a fairly limited say in the selection of the style of cover or the presentation of internal illustrations, and these constraints are also need to be observed by institutional e-publishers. Rewards for the author(s) include the creation of added-value for normal academic work, with little additional effort required, a fast turn-around from manuscript submission to publication, immediate international distribution of the e-book, associated reputational enhancement, and perhaps the option of greater involvement of authors than is customary in the traditional publication process. The counterpoint (in this project) is that the university retains the intellectual property rights and any royalties are re-invested in the publication process. This might be less of a barrier than might initially be expected when comparing author royalties of around 5-10% on a small print-run on the paper version as compared with 70% returns on Kindle Direct. For a lower-priced e-textbook with a significant number of downloads, this can still provide a substantial return on investment for the university.

A continuing element of interest for this project will be how the current e-publishing processes adapt to issues of scalability and future production models. A key topic will be the publication of a third and subsequent e-textbook beyond the currently funded project. In this regard, much of the remainder of this project will focus on documenting the details of the in-house publishing processes and embedding these tasks in the mainstream academic development practices of the universities.

Conclusions and recommendations

The e-tips project has indicated some of the potential for e-publishing to make scholarly output from academic institutions more widely available. It has also highlighted some of the practical challenges that academic institutions face as e-publishers. The field is moving quickly, with developments in technology often outstripping developments in pedagogical understanding, but it has been demonstrated that e-books and e-publishing provide an opportunity for academic institutions to innovate in the digital production processes to generate academic resources. Many of the challenges highlighted above are structural or systematic, and there is no reason why these cannot be addressed by universities to allow more extensive access to their academic knowledge, regardless of geographical, timing or affordability barriers. That said, some of the challenges faced in sharing academic knowledge with less-developed countries remain, most notably, access to affordable e-readers for students (and staff) in those countries.

The student perspective on using e-books is an area which is still changing, and where more research is clearly needed. We need to understand preferences between printed books and digital texts. For instance, do students prefer a printed book because they can annotate it? If so, perhaps we need to think more about enabling embedded commentary on digital materials. The e-tips project has identified the need for different levels of e-books; short texts for specific modules and internal distribution; generic e-books where affordability and access has a greater priority than potential royalties; and flagship publications which might encourage split royalties and/or university branding. In future, university e-publishing might be extended to include PhD dissertations and other student productions. Clearly, we need to be able to respond to changing ways in which knowledge is produced, accessed and used.

For course tutors, the potential of the customised e-book cannot be underestimated: being able to direct students to a resource of high academic quality but one which has been tailored to meet the needs of a specific course, or even a module, is an attractive proposition. The ease of digital publication makes this a possibility but only after some of the challenges outlined earlier in this paper have been addressed. The digital publication process, up until the stage of actual publishing, is much the same as for a conventional publisher. The subject matter has to be worth reading, needs to be well-written, peer-reviewed, proofread, and correctly formatted. Thereafter, the speed of the digital publication process, which enables immediate global access, is game-changing. The ability to produce e-books quickly and cheaply and make them accessible is a worthy goal, but we must be aware of the potential to dilute academic standards by reducing knowledge 'half-life' and ultimately perhaps making knowledge more disposable. This needs to be balanced with the ability of e-books (and the companion websites) to update quickly, innovate, and enhance the currency of academic knowledge. There is no evidence, for or against, that the companion website has influenced the sale of the books, but an essential part of the project was that the 'brand' is identified as 'e-tips' rather than any individual university, so this allows for future extensions to other collaborators and OER sources, although as with all websites, the ongoing maintenance and curation issues require to be settled.

E-book developments are currently at the cutting edge of learning & teaching development, and research dissemination and perhaps the word 'transformation' is not out of place here. It needs to be remembered that the e-book is the latest step in the long evolution of what we call 'the book'. The evolution of the book has been integral to the evolution of knowledge and the way in which that knowledge is accessed – from the early hand-written volumes, to mass-produced paperbacks. The e-tips project has demonstrated one other model, and another small step in the development of written academic output. The affordable e-book has the ability to widen access to academic knowledge and make it simpler and quicker for academics to disseminate information globally. Immediate opportunities exist to utilise this model of publishing to expand author autonomy for other scholarly output, including 'grey literature' (e.g. consultancy reports), extended essays, monographs, conference and symposia proceedings, and selected work by students, (e.g. doctoral dissertations, which have a very small potential readership and are not generally viable by conventional publishing models). This form of output has traditionally been restricted to a few academics, and perhaps that will continue for the foreseeable future, but the notion of potentially publishing students' academic work might be an incentive for students to improve the quality of their work.

The e-tips project is a positive step towards equipping both students and academic staff with a digital publication model to enhance learning, teaching, and research through making it easier to reach the global student market. It also demonstrates that the production of affordable, high quality academic texts need not be restricted to the traditional format of expensive, print-orientated books but rather it moves the locus production into the hands of the academic institution, its staff, and its students.

Implications for academic practice

1. The process of re-formatting and re-purposing of academic output of individuals or groups offers a highly effective way of a) obtaining multiple outputs for minimal extra work; and b) disseminating to new learners on a global reach.
2. The combination of very inexpensive e-textbooks and open-access learning resources on a companion website increases both student affordability and the longevity of the relevance of the e-book (updated resources being added to the website).
3. The production method allows extreme flexibility in the selection of the contents and academic levels of the textual materials, allowing possibilities for the production of extended essays, monographs, conference or seminar proceedings, and dissertations by honours or postgraduate students, and other scholarly works which would not normally be viable for conventional commercial print publication.
4. The production methods allow for an extremely fast turnaround between the submission of the completed manuscript to its global publication.
5. The constraints of using a proprietary brand such as Kindle may be considered to be at least balanced by the ease of use and control over issues such as global distribution, regional pricing, and digital rights management, and access to a mass market, but this requires the university to have a clear and active policy for managing the publications.
6. Although the proposed model has gone for the direct delivery of affordable e-textbooks through Kindle to students, the logistical difficulties which discourage or prevent university libraries from stocking individual e-textbooks will necessitate new or revised methods of procurement, management, storage and user access for institutional libraries.

Acknowledgements

Many thanks to the other e-tips project participants for their comments and support, Jacky MacMillan, Mhairi Longmuir, Lesley Murray, Susan Barrie, Anne Chard and Errol Rivera.

Biographies

Frank Rennie is Professor of Sustainable Rural Development at the University of the Highlands and Islands in Scotland and Assistant Principal at Lews Castle College UHI. His research interests are in new approaches to online education and networking for sustainable rural development, See http://www.lews.uhi.ac.uk/frennie and https://uheye.wordpress.com/ or @frankrennie. Contact frank.rennie@uhi.ac.uk

Keith Smyth is Professor of Pedagogy at the University of the Highlands and Islands, where he supports developments in educational practice, scholarship and research. He is particularly interested in how digital technologies can enhance learning and teaching, academic development and educational outreach. He blogs at https://3eeducation.org/ and is on twitter @smythkrs

Gareth Davies is based in Lews Castle College UHI in Stornoway and is the Co-ordinator for PGT Tertiary & Higher Education Scheme programmes. With a background in psychology, his research interests include online education and aspects of health psychology. See https://www.lews.uhi.ac.uk/research-enterprise/contact/dr-gareth-davies. Contact Gareth.Davies@uhi.ac.uk

Scott Connor is an Educational Development Leader at the University of the Highlands and Islands, Scotland. His interests include lifelong learning, pedagogic models and technological implementation and innovation in education. Contact scott.connor@uhi.ac.uk

Laurence Patterson is Evaluator on the e-tips project, a Senior Fellow of the Higher Education Academy, and former Programme Leader and Lecturer in Education at Edinburgh Napier University. His interests lie in technology-enhanced learning, publishing and assessment. See www.linkedin.com/in/laurence-patterson or www.twitter.com/digitalpatter. Contact l.patterson@napier.ac.uk

References

Acker, S. R. (2011). Digital textbooks: A State-Level perspective on affordability and improved learning outcomes. *Library Technology Reports, 47*(8), 41-52. Retrieved 24 October 2016 from https://journals.ala.org/ltr/article/view/4420/5130

Armstrong, C., Edwards, L., & Lonsdale, R. (2002). Virtually there? E-books in UK academic libraries. *Program: electronic library and information systems*, *36*(4), 216–227. doi: https://doi.org/10.1108/00330330210447181

Ashcroft, L. (2011). Ebooks in libraries: An overview of the current situation. *Library Management, 32*(6/7), 398–407. doi: https://doi.org/10.1108/01435121111158547

Chad, K. (2013). *The challenge of ebooks in academic institutions: Project report*. Retrieved 24 October 2016 from http://ebookchallenge.org.uk/report/

ChanLin, L. (2013). Reading strategy and the need of e-book features. *The Electronic Library*, *31*(3), 329–344. doi: https://doi.org/10.1108/EL-08-2011-0127

Chesser, W. D. (2011). The e-textbook revolution. *Library Technology Reports, 47*(8), 28-40. Retrieved 24 October 2016 from https://journals.ala.org/ltr/article/view/4426/5142

Cook, E. I. (2011). Academic Library dilemmas in purchasing content for e-readers. *Library Technology Reports, 47*(8), 14-17. Retrieved 24 October 2016 from https://journals.ala.org/ltr/article/view/4424/5138

Croft, R., & Davis, C. (2010). E-books revisited: Surveying student e-book usage in a distributed learning academic library 6 years later. *Journal of Library Administration*, *50*(5-6), 543–569. doi: https://doi.org/10.1080/01930826.2010.488600

Daniel, D.B., & Woody, W.D. (2013). E-textbooks at what cost? Performance and use of electronic v. Print texts. *Computers & Education*, *62*, 18–23. doi: https://doi.org/10.1016/j.compedu.2012.10.016

Edwards, L. (2002). Shaping a strategy for electronic books: The JISC e-books working group. *New Review of Information Networking*, *8*(1), 81-87. doi https://doi.org/10.1080/13614570209516992

Foasberg, N. M. (2011). Adoption of e-book readers among college students: A survey. *Information Technology and Libraries*, *30*(3), 108-128. doi: https://doi.org/10.6017/ital.v30i3.1769

Gall, J. E. (2005). Dispelling five myths about e-books. *Information Technology and Libraries*, *24*(1), 25–31. doi: https://doi.org/10.6017/ital.v24i1.3361

Gibson, C., & Gibb, F. (2011). An evaluation of second-generation ebook readers. *The Electronic Library*, *29*(3), 303–319. doi: https://doi.org/10.1108/02640471111141061

Graydon, B., Urbach-Buholz, B., & Kohen, C. (2011). A study of four textbook distribution models. *Educause Quarterly*, *34*(4). Retrieved 24 October 2016 from http://er.educause.edu/articles/2011/12/a-study-of-four-textbook-distribution-models

Grudzien, P., & Casey, A.M. (2008). Do off-campus students use e-books? *Journal of Library Administration*, *48*(3), 455–466. doi: https://doi.org/10.1080/01930820802289532

Hart, M. (1992). *Gutenberg: the history and philosophy of Project Gutenberg*. Retrieved 24 October 2016 from http://www.gutenberg.org/wiki/Gutenberg:The_History_and_Philosophy_of_Project_Gutenberg_by_Michael_Hart

Hilton III, J.L., & Wiley, D.A. (2010). A sustainable future for open textbooks? The Flat World Knowledge story. *First Monday*, *15*(8). Retrieved 24 October 2016 from http://firstmonday.org/ojs/index.php/fm/article/view/2800 doi: https://doi.org/10.5210/fm.v15i8.2800

JISC, (2009.) *JISC National E-books Observatory Project: Final Report*. Retrieved 24 October 2016 from www.jiscebooksproject.org/reports/finalreport

JISC, (n.d.). *The institution as e-textbook publisher.* Retrieved 24 October 2016 from https://www.jisc-collections.ac.uk/Institution-as-E-textbook-Publisher/

Kumbhar, R. (2012). E-books: Review of research and writing during 2010. *The Electronic Library*, *30*(6), 777–795. doi: https://doi.org/10.1108/02640471211282109

Lai, J., & Chang, C. (2011). User attitudes toward dedicated e-book readers for reading. *Online Information Review*, *35*(4), 558–580. doi: https://doi.org/10.1108/14684521111161936

Lam, P., Lam, J., & McNaught, C. (2010). How useable are eBooks in an mLearning environment? *International Journal of Continuing Engineering Education and Life-Long Learning*, *20*(1), 6–20. doi: https://doi.org/10.1504/IJCEELL.2010.031645

Lynch, C. (2001). The battle to define the future of the book in the digital world. *First Monday, 6*(6). Retrieved 24 October 2016 from http://firstmonday.org/ojs/index.php/fm/article/view/864 doi: https://doi.org/10.5210/fm.v6i6.864

Montgomery, C. H. (2000). Measuring the impact of an electronic journal collection on library costs: A framework and preliminary observations. *New Review of Information Networking*, *6*(1), 37-52. doi: https://doi.org/10.1080/13614570009516951

Muir, L., & Hawes, G. (2013). The case for e-book literacy: Undergraduate students' experience with e-books for course work. *The Journal of Academic Librarianship*, *39*(3), 260–274. doi: https://doi.org/10.1016/j.acalib.2013.01.002

Muir, L. J., Veale, T., & Nichol, A. (2009). Like an open book? Accessibility or e-book content for academic study in a diverse student population. Library and Information Research, *33*(105), 90-119.

Nie, M., Armellini, A., Witthaus, G., & Barklamb, K. (2011). How do e-book readers enhance learning opportunities for distance work-based learners? *Research in Learning Technology*, *19*(1), 19–38. doi: https://doi.org/10.1080/09687769.2010.548506

Pattuelli, M.C., & Rabina, D. (2010). Forms, effects, function: LIS students' attitudes towards portable e-book readers. *Aslib Proceedings*, *62*(3), 228–244. doi: https://doi.org/10.1108/00012531011046880

Prasad, D., Totaram, R., & Usagawa, T. (2016). Progressing towards open textbooks learning analytics system. *Journal of Perspectives in Applied Academic Practice, 4*(3), 56-60. Retrieved 24 October 2016 from http://jpaap.napier.ac.uk/index.php/JPAAP/article/view/190/pdf doi: https://doi.org/10.14297/jpaap.v4i3.190

Qian, J. (2011). Evaluating the kindle DX e-book reader: Results from Amazon.com customer reviews. *Performance Measurement and Metrics*, *12*(2), 95–105. doi: https://doi.org/10.1108/14678041111149318

Rennie, F., (2016). OER (open educational resources): e-tips, *Insights*, *29*(1), 20–25. doi: https://doi.org/10.1629/uksg.272

Reynolds, R. (2011). Trends influencing the growth of digital textbooks in US higher education. *Publishing Research Quarterly*, *27*(2), 178–187. doi: https://doi.org/10.1007/s12109-011-9216-5

Richardson, J. V., & Mahmood, K. (2012). EBook readers: User satisfaction and usability issues. *Library Hi Tech*, *30*(1), 170–185. doi: https://doi.org/10.1108/07378831211213283

Rockinson-Szapkiw, A. J., Courduff, J., Carter, K., & Bennett, D. (2013). Electronic versus traditional print textbooks: A comparison study on the influence of university students' learning. *Computers & Education*, *63*, 259–266. doi: https://doi.org/10.1016/j.compedu.2012.11.022

Ruo, D., & Xiaotang, Y. (3013). Build optional digital textbooks for distance learners. *Open Praxis, 5*(4), 265-274. doi: https://doi.org/10.5944/openpraxis.5.4.92

Safley, E. (2006). Demand for e-books in an academic library. *Journal of Library Administration*, *45*(3-4), 445–457. doi: https://doi.org/10.1300/J111v45n03_09

Schomisch, S., Zens, M., & Mayr, P. (2013). Are e-readers suitable tools for scholarly work? Results from a user test. *Online Information Review*, *37*(3), 388-404. doi: https://doi.org/10.1108/OIR-12-2011-0221

Shelburne, W. A., (2009). E-book usage in an academic library: User attitudes and behaviors. *Library Collections, Acquisitions, and Technical Services*, *33*(2-3), 59–72. doi: https://doi.org/10.1016/j.lcats.2009.04.002

Stone, R. W., & Baker-Eveleth, L. (2013). Students' expectation, confirmation, and continuance intention to use electronic textbooks. *Computers in Human Behavior*, *29*(3), 984–990. doi: https://doi.org/10.1016/j.chb.2012.12.007

Van der Velde, W. & Ernst, O. (2009). The future of eBooks? Will print disappear? An end-user perspective. *Library Hi Tech*, *27*(4), 570–583. doi: https://doi.org/10.1108/07378830911007673

Van Scoyoc, A. M., & Cason, C. (2006). The Electronic Academic Library: Undergraduate Research Behavior in a Library Without Books. *Libraries and the Academic*, *6*(1), 47-58. doi: https://doi.org/10.1353/pla.2006.0012

Walters, W. H. (2013). E-books in Academic Libraries: Challenges for acquisition and collection management. *Libraries and the Academy*, *13*(2), 187–211. doi: https://doi.org/10.1353/pla.2013.0012

Weisberg, M. (2011). Student attitudes and behaviors towards digital textbooks. *Publishing Research Quarterly*, *27*(2), 188–196. doi: https://doi.org/10.1007/s12109-011-9217-4

Wenger, E., (2011). *Communities of practice: A brief introduction*. Retrieved 24 October 2016 from https://scholarsbank.uoregon.edu/xmlui/handle/1794/11736