

# Using e-readers to increase access to course content for students without Internet access

**Angela Murphy**

Australian Digital Futures Institute  
University of Southern Queensland

**Neil Martin**

Australian Digital Futures Institute  
University of Southern Queensland

**Helen Farley**

Australian Digital Futures Institute  
University of Southern Queensland

There have been mixed reviews about the potential of e-readers to enhance higher education. At first glance, e-readers appear to have significant potential to provide students with access to course content and learning materials. There are a number of considerations and obstacles to be addressed, however, before these devices are ready for widespread adoption. This paper reports on a pilot study using e-readers to provide students without internet access, with access to electronic course content. Course readings were converted into ePub format and were made available to a cohort of 16 incarcerated students via e-readers. This paper provides an overview of the steps undertaken as well the challenges and obstacles encountered in converting the readings to ePub format.

Keywords: e-readers, diversity and inclusion, ePub, incarcerated students, digital divide

## Project context and background

Since the release of the Amazon Kindle in November 2007, the popularity of e-readers and e-books has increased rapidly and a growing number of publishers are producing content in multiple formats to service the e-reader market (Stone, 2008). E-readers are low-cost, energy efficient devices capable of storing a large number of journal articles, course readings, dictionaries and other course resources. They also enable students to bookmark, search and take notes. Consequently, these devices have the potential to overcome a number of challenges within the higher education (HE) context including the rising cost of textbooks and the increasing demand for mobility and flexibility in learning. Research has identified a range of challenges and barriers that hinder the widespread uptake of e-readers in HE (Gerlich, Browning & Westermann, 2011) including difficulties in obtaining copyright permission to replicate materials, and difficulties in converting documents from pdf format to ePub.

This paper reports on the processes, challenges and successes experienced during a pilot project to provide a small cohort of incarcerated students with access to course materials in ePub format on e-readers. The increasing reliance of distance learning institutions on elearning has resulted in greater challenges for incarcerated students attempting to participate in HE, as offenders are excluded from enrolling in any programs that require learners to consult resources on the internet (Mortimer, 2008). Formal education and training delivery to prisoners is currently provided in non-digital forms using large volumes of printed copies of the course materials (Dorman & Bull, 2003). This is costly for universities to assemble, print and post, and cannot incorporate all of the learning support resources of the course. The aim of the pilot project was to attempt to overcome some of these challenges as well as provide opportunities for incarcerated students to develop critical e-literacy and e-research skills (Farley & Murphy, 2012).

## Conversion process for course materials to ePub format

Course materials from a Tertiary Preparation Program (TPP) course *Studying to Succeed* at the University of Southern Queensland (USQ) were made available in ePub format to 16 incarcerated students on two types of e-Readers; the Sony PRS-350™ and Sony PRS-300™. The majority of the course materials were originally only available in PDF format. PDF does not display optimally on some eReaders and users cannot resize and reflow the content to meet their preference. As previous research has indicated that functionality and ease of use are

particularly important to students (Mealer, Morgan & Williams, 2011), it was decided to convert the PDF documents to ePub (via an intermediate RTF conversion step).

**Table 1: Overview of the process for conversion of PDF documents to ePub**

Obtaining copyright permissions	The use of a number of the published journal articles required negotiation with publishers to make the readings available on the e-readers. Permission was obtained for all but two of the readings. These readings were not included in the e-readers.
Conversion to ePub format	Apple Pages was the software utilized for content conversion. A template was set up in Pages and the course content embedded. Content styles such as headers and captions were applied to the text and images resized as appropriate. An issues log was created to record problems along the way. All ePub files were uploaded onto the Sony eReaders. Cumulatively, 79 ePubs were created of which 61 were course readings, 17 module guides (the study book divided up), and the course introduction book. If printed onto A4 the course material would amount to approximately 750 pages. In this trial that would amount to 12,000 pages of printed text.
Formatting	A Pages template “ePub Best Practices” was customised and adapted to USQ style. The use of ePub allowed the students to resize and reflow the documents.
Use of images and tables	Larger tables and images did not always display correctly on the e-readers. This may be a limitation of the device and Pages output. Images were resized and, screen grabs of the tables were taken from the original PDF and embedded into the tables.

## Challenges experienced and early successes

In using Pages most content was relatively easy to convert into ePub format, however a number of technical challenges were experienced and solutions sought.

- Some materials e.g. Learning Activities materials required extra mark up (such as a Horizontal Line) to distinguish them from the main body copy. This is due to the homogenous nature of ePub and whilst this advantageous in terms of allowing the reader to reformat and reflow the content to meet their own preferences, some control over how specialised content is formatted is lost.
- Direct conversion to ePub from Open Document formats (ODT) proved impossible. The solution was to convert materials to Rich Text Format first.
- Some text sizing was inconsistent following conversion and required a manual sweep of the document to fix. A better solution is to check the HTML markup in the ePub against the corresponding style sheet using a tool such as Sigil, although this wasn't done in this project due to the lack of appropriate expertise of the person converting the materials.
- Readings were initially intended to be in a single large ePub file. However, the Pages software became slow and unstable due to the sheer size of the file and files were broken up into individual ePubs. The final checking of materials is time consuming and any future work needs to look for efficiencies. It is anticipated that as conversion software matures this process will be a lot easier.

Early feedback from pilot participants has indicated that the e-readers have contributed significantly to increasing satisfaction with learning and accessibility of course materials. Students received initial training and support from prison education officers in the use of the devices and the learning curve and time required to adjust to the device was less than anticipated. Initial feedback from incarcerated students is that the e-readers provide access to learning materials during times of lock down and are convenient to use for study. The e-readers have also had the added benefit of introducing long term incarcerated students to mobile technology devices.

## Conclusion

Initial indications suggest that course readings made available in ePub format on e-readers to students will assist in overcoming some of the challenges experienced by students without internet access. E-readers preloaded with course materials and additional learning resources can be posted to students without internet access at minimal costs and is more cost-effective than posting large quantities of printed materials. E-readers can also be preloaded with a larger number of additional resources such as dictionaries, including multilingual dictionaries and open educational resources. More advanced e-readers even allow the inclusion of audio and video resources. Within correctional centres, e-readers are a viable alternative to expensive textbooks that are often a barrier to

participation in HE and also assist in overcoming the restrictions on physical space available for textbooks in cells. A number of challenges need to be overcome before the use of e-readers is sustainable. These include the availability of readings and journal articles in more user friendly formats such as rich text or html and the development of dedicated software and automated workflows to enable bulk conversion of documents to ePub format. Copyright considerations are the greatest obstacle to the success of these initiatives due to the restrictions imposed by publishing houses regarding the formatting changes that may be required for effective conversion to ePub or lack of permission for conversion altogether.

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### Author contact details:

Angela Murphy, [angela.murphy@usq.edu.au](mailto:angela.murphy@usq.edu.au)  
Neil Martin, [neil.martin@usq.edu.au](mailto:neil.martin@usq.edu.au)  
Helen Farley, [helen.farley@usq.edu.au](mailto:helen.farley@usq.edu.au)

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