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Preparing for the mobile world: experimenting with changing technologies and applications for library services
Colin Bates and Rebecca Carruthers, Deakin University Library, Australia.

Introduction
The field of mobile technologies is huge. This paper tries to limit discussion to the context of university libraries and the delivery of information resources. However, it is helpful to be informed by the wider educational environment and technology marketplace. We explore: the technology background and take up by university library clients; how libraries have used and are using client serving technologies; the Deakin University Library (the Library) e-resources profile; the Library’s adoption of and experimentation with, mobile friendly applications, interfaces and technologies; and some outcomes and conclusions based on current experience and technology evaluations.

Understanding the client technology profile
Understanding library clients and their current use of information technologies is essential in effectively providing services and resources to them, while also enabling knowledgeable advice on mobile technologies and interfaces within a library context. An exponential increase in the ownership of laptop or netbook PCs by university students has been seen, and smartphone use has exploded amongst the student and general population. A great number of undergraduate students have and use laptops, netbooks and smartphones in library spaces. This high take up of mobile technology by students is evidenced by Australian research at Curtain University of Technology showing “Three quarters (76%) had laptops or netbooks … Approximately 99% of respondents had mobile phones: three-quarters of those (75%) were web enabled.” (Oliver and Nikoletatos, 2009, 723).

Data from the USA presented in the ECAR Study of Undergraduate Students and Information Technology, 2010 (Smith and Caruso, 2010) shows the technologies that students own and how they use it through a surveyed 36,000 undergraduate students from over 120 universities and
colleges. This client profile information for the US and Australia largely pre-dates the release of the iPad.

The ECAR Study (Smith and Caruso, 2010) provides information on the technologies the students are using. Over 80% of students owned a laptop, and over 10% a netbook (close to 89% saturation among undergraduate students), and over 60% of students own an Internet capable hand held device (Smith and Caruso, 2010, 9). These will mainly be smartphones, and iPod Touch or PDA technology. As the ECAR data collection is twelve months old it is reasonable to expect greater current take up of mobile technologies than the 2010 figures indicate.

**Building mobile library resources and services**

We know from this client data that there is a very strong mobile technologies infrastructure among university students. Libraries have reacted to the mobile technology “buzz” and moved to make it support both clients and provision of information resources. There has been a huge investment by academic libraries in electronic resources pre-dating the more recent convenient mobile technologies. Many libraries also use other Internet or web based applications from email to social networking to offer and promote services. Libraries can now look to expand them to more mobile devices. Web based information resources are of great benefit, particularly in terms of their ease and convenience of access. It is here that the greatest financial investments have been made by libraries.

Deakin University Library services four geographically distant campus populations, and a large cohort of distance education students around Australia and the world, so electronic resources are invaluable. The teaching needs of the University fit well with electronic and remote delivery of resources. Even better use of these resources can be made by the effective use and promotion of them in a mobile environment. Clients can then really exploit the possibilities of their mobile devices and with the help of the library, go mobile in ways they have not yet thought of given the default use of many mobile devices is primarily social and entertainment based. This extends information options, and the reach of the library.
The Library has developed initiatives to move our resources and services environment ever more mobile. These tie in with wider Deakin University moves towards providing mobile optimized web resources for students using mobile devices – see Figure 1.1.

**Features**

- Deakin Studies Online
- Deakin Email (Outlook Web Access)
- Find Buildings, Rooms and Services
- News From Deakin
- Access The library Catalogue
- Find Deakin Staff
- Check Your Deakin Card Balance
- View Current I.T Outages
- Check Deakin Computer Lab Availability
- Transport To And From Deakin
- View The Full Deakin Website
- Search The Deakin Website

Figure 1.1 Deakin Web for Mobile Devices http://apps.deakin.edu.au/m/

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These key services are being ‘mobile optimized’ and will drive student demand and use on handheld devices. The Library subject guides (http://deakin.libguides.com/) utilize the Springshare platform, and are also mobile device aware. Clients get added value from mobile access to services supporting study, research, and clinical placements. There are very good reasons for libraries to promote mobile access options, and return on existing investments in online information resources is a fairly major aspect.

**Deakin University Library and electronic resources**

The Library has seen a shift in budgetary spend in terms of purchasing print and electronic resources over the last few years. This can clearly be seen in Figure 1.2, where 2010 saw less
than 30% of the Library’s total spend go towards print resources, almost a reverse of percentages for 2003. These figures are particularly interesting considering the fact that the Library does not consider itself e-preferred, but rather e-flexible (an electronic collection on top of a print base collection).

Figure 1.2: The percentage shift in spending from print to electronic resources 2003-2010

Serials has seen the fastest uptake and acceptance of electronic over print, reaching a plateau of around 85% of the total serial spend in 2006. This acceptance is due in part to an active program of managed change including: extensive marketing, one-on-one assistance, and information sessions on new online resources. The Library continues to conduct these sessions; promoting resources and providing training so that our clients get the most out of resources.

This growth of e-resources, particularly the more recent growth in e-books, has prompted the Library to examine how our clients will be accessing and using these resources. Are they going to be able to extract the same flexibility and portability of these e-resources as a print book? This has prompted exploration of mobile technologies such as e-book reading devices, multifunction devices such as mobile phones, tablet PC’s, along with netbook computers.

Kindle Pilot
Deakin University Library is currently conducting a pilot study into lending e-readers and has selected Amazon's Kindle device for this study. They are available for two week loan and contain a mixture of popular fiction and non-fiction titles. Clients are also able to request titles to be purchased and remotely loaded onto the device during their loan period. With every loan, users are encouraged to complete a survey. These produced largely very positive responses. Interestingly there is no preference when it comes to the types of materials being made available on these devices. Since the advent of the Apple 'i' technology, users have come to expect certain things including devices having a colour, touch screen – this lack has been a major criticism of the Kindle.

Survey responses also suggest that clients appreciate the ability to “try before you buy”, which this project allows. The Library, in conjunction with the IT Services Division, will expand this concept into a “Tech Zone” trial, enabling users to test out a range of new devices within the Library.

Other technology on trial at Deakin

Deakin University is also internally trialing other devices, including the Kobo reader, the Sony touch e-reader, the Handii PC and the iPad. These devices were reviewed by Library staff and have been involved in several “play” sessions with local TAFE and community library staff for group discussion and evaluation.

Due to the portability and flexibility of the iPad, Deakin University Library has allocated this device to all team leaders. These staff have utilized iPads to reduce the amount of paper used in the office, making this an eco-friendly advance as well as a technological one. iPads and iPod Touches are also being used as mobile reference points by roving staff members, allowing client assistance “on the fly”. These devices are also assisting staff in collecting statistics online. With all new technologies, there are negatives associated with purchasing devices as soon as they become available. The industry is constantly evolving and as such, you will always want something new, and as soon as you have it, it is out of date or obsolete. With the “Tech Zones”, there will be a higher overall usage of devices purchased for trial and assessment.
Whilst looking at mobile technology one must remember that in the ECAR Study (Smith and Caruso, 2010), 89% of undergraduate students owned a laptop or netbook computer; a multi-function device that is constantly getting smaller and smaller. Comfort and familiarity makes for a happy technology user (most of the time), so it comes as no surprise that these are still in wide use, offering a familiar operating system and enterprise applications such as Microsoft Office. Unlike other portable devices, netbooks have USB ports, allowing for easy sharing of documents.

**Future devices**

According to the feedback from our small scale trials, future mobile devices must:

- Not be locked down to a single e-book source (eg. Amazon)
- Be multi-functional and be able to run multiple programs at the one time
- Be web enabled and have wireless functionality
- Be able to handle all available e-book formats (e.g. ePub, PDF)
- Have a colour touch screen
- Be lightweight while maintaining a long battery life
- Be able to run Flash web pages
- Have the ability to add documents to it without needing to connect to a computer

These requirements are often met in a netbook.

**Lending technology?**

The latest technology is tempting and can be expensive. Why not just lend it to people? This is not as simple a concept as it first appears. Deakin University Library has a long history of lending laptops to students, and with a range of support infrastructures this activity is successful. However, we know from the ECAR Study (Smith and Caruso, 2010), most students are buying their own laptops and smartphones. While lending laptops and Kindle e-book readers can be done, it must be done carefully and within the constraints of license and usage agreements, and local administrative requirements.
In particular, libraries are restricted in what applications and content may be offered on a device. Varied licenses, contracts and usage agreements all need to be abided by and are largely designed for individual use. This in fact means that while some content and mobile devices simply are not well suited for a lending environment, they can be very effective personal tools.

Partnerships are possible with manufacturers and publishers but have to be carefully negotiated, and may not deliver all the preferred outcomes. Results of a range of partnership studies with publishers, Amazon, and universities in the USA report mixed outcomes, for example the *Reed College Kindle Study* (Marmarelli and Ringle, n.d.). There are likely to be pros and cons in each negotiated partnership situation. Usually, compromises have to be made meaning a partner doesn’t quite get what they want.

Before a program of lending mobile devices is considered at the institutional level, a position should be developed in response to these questions. Who will:

- be responsible for maintenance and control of the devices?
- pay for applications, and 3G connectivity?
- administer authentication and subscription logins?
- manage content?
- provide training, and instructions in use?
- repair and replace devices?

The list could be longer of course as the detail is explored. Lending mobile devices is not a simple option.

If lending is difficult, an institution can provide devices to staff or students as an alternative. Recent examples of where students “have been given free iPads” have been reported in the press at several universities in Australia (Maslen, 2011, 14). This could be seen as a populist approach, though undeniably done with the aim of improving educational outcomes. The *Chronicle of Higher Education* also reports some mixed outcomes in iPad use in the classroom (Kaya, 2010). The important answers as to “why do it?” must lie in the productivity or educational outcomes to be achieved, and that requires some serious thought and planning of institutional level initiatives. By
‘gifting’ a device, the responsibility for using the device to achieve these outcomes passes to the owner.

**Outcomes and conclusions**

We have good information to work with based on what we know of our clients, our resources, and the currently available mobile technologies. This can inform the way in which a library service makes decisions on how to exploit the possibilities of mobile devices and electronic resources in order to give clients the flexibility and choices that can add value to their individual academic activities. Some key elements to consider are:

- the extent of library investment in e-resources
- web based delivery is platform independent and offers flexibility
- technology is constantly evolving
- client needs vary with the individual
- device experimentation and evaluation by libraries is important
- understand what works for both clients and libraries

These points applied to particular library services and client cohorts can help librarians to offer appropriate and sustainable client centered services.

At the Deakin University Library there is growing practical experience of how useful an iPad or iPod Touch can be as a tool for mobile support of students and academics either within the Library or amongst the researchers and academics in laboratories and offices. This use of mobile devices in providing advice to clients was only made possible by having the mobile devices in the Library for evaluation and testing in the first place.

Libraries should be investing in mobile technology for the knowledge and experience it provides, although not necessarily always with the view to lending the equipment itself. This activity helps to inform library resource selections and the development of services and support to clients, and should be informed by the understanding that the final decision on any given mobile technology’s usefulness does lie with the individual who will be using it. To ensure the best client value, the
mobile device needs to access the client selected content, and the user must have control over the configuration that delivers them the best personal results.

Our advice and experience as librarians who are informed and knowledgeable about mobile technologies and applications can help to map out effective services and resources to assist our clients in making the most valuable decisions for their individual needs.

References


