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## M-Libraries: Information use on the move

A report from the Arcadia Programme, by Keren Mills



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## About the author

Keren is the Innovations Officer in the Research and Innovations Team in the [Open University Library & Learning Resources Centre](#). She is primarily responsible for running the [Digilab](#), which is a staff development resource in the library for Open University staff, giving them the opportunity to get hands-on with a range of educational technologies. Keren also undertakes horizon scanning around technologies that could be used to improve library services, such as mobile technologies, social networking software and gaming. She is an active user of social networks and can be found on [Twitter](#), [Flickr](#), [Del.icio.us](#) and others.



## Executive Summary

Developing m-library services is usually expensive and resource intensive, requiring expertise that existing library staff may not have. Before committing funding and staff time to such projects, it is important to try and ensure, as far as possible, that such investments are targeted at meeting actual needs, and are adding value to existing library services.

The Information Use on the Move project was undertaken in that spirit - to scope the information requirements of academic library users on the move in order to inform future development of library services to mobile devices. The aim was to identify trends in the way people currently interact with information using their mobile phones, and then extrapolate ways that libraries could support those mobile information needs.

People are currently more positive about accessing information via SMS than via the mobile internet, although iPhones and iPhone-like smartphones may change that. The cost of mobile internet browsing has dropped considerably in the past year, and is likely to drop further under pressure from consumer watchdogs. However, in the current environment text messages (SMS) are likely to be more popular with library users in the UK than mobile web services.

- Many phones due to be released in 2009 are imitating the iPhone's touch screen interface and are likely to try and compete with the improved internet browsing experience it offers.
- The majority of respondents primarily use their phones to make calls, send text messages and take photographs, and some respondents commented that they prefer to use their iPod or other media player to access these other forms of media.
- iPhone users are already more inclined to read eBooks on their phones, according to comments from the respondents to this survey.

Higher Education libraries should consider

- **Piloting text alerting services** - giving users the opportunity to choose whether they want notifications by text message, email or both are likely to be taken up by at least a third of library users. These alerts would include the notifications automatically generated by the Library Management System (LMS).
- **Piloting a text reference service** – if the library receives a high volume of enquiries that require brief responses, such as dictionary definitions, facts or service information from the library.
- **Providing a mobile OPAC interface** – perhaps using a service such as AirPac or WorldCat Mobile, or working with their LMS supplier to develop a mobile version of their OPAC.

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- **Ensuring that the library website is accessible and will resize to smaller screens** – in order to be ready for increasing numbers of netbook users and mobile internet users in the next few years.
- **Providing audio tours of the library** - to help visitors or new users orient themselves and learn more about the service.
- **Allowing mobile phone use in the library** - as long as they are set to silent or to flight mode (meaning they are not receiving a signal).

## Introduction

When people talk about mobile libraries, they tend to mean a bus or truck that has been kitted out as a roving branch library. However with a growing number of people accessing the internet from their pocket PCs and mobile phones, libraries are investigating ways to deliver their services to mobile phones and other small-screen devices so their customers can access them any time anywhere. This can be as simple as sending text message alerts about reservations becoming available or overdue books, or as complex as the Athabasca University Library's Digital Reading room, which allows readers to access full eBooks and journal articles through their library's subscriptions on any mobile device. These services have collectively become known as 'm-libraries'. (Needham, Ally 2008)

Developing m-library services is usually expensive and resource intensive. Setting up text alerts, for instance, requires technical expertise from staff who understand how the library management system produces notifications, as well as staff or consultants who can help to set up an interface with a sim card modem or a suitable service in order to deliver those notifications as text alerts. The Open University library's project to make its website mobile-friendly took four months despite using software already developed for such a purpose by Athabasca University. Before committing funding and staff time to such projects, it is important to try and ensure, as far as possible, that such investments are targeted at meeting actual needs, and are adding value to existing library services.

The Information Use on the Move project was undertaken in that spirit - to scope the information requirements of academic library users on the move in order to inform future development of library services to mobile devices. The aim was to identify trends in the way people currently interact with information using their mobile phones, and then extrapolate ways that libraries could support those mobile information needs. Mobile phones are increasingly converged devices, incorporating cameras, calendars, MP3 players, word processors and internet browsers. According to Ofcom 86% of adults in the UK own a mobile phone that they use more than once a month. However the majority of people primarily use them for making calls and sending text messages. (Ofcom, 2008)

The reason for concentrating specifically on mobile phones, rather than including other portable devices such as MP3 players and netbooks, was that mobile phones require content

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to be specifically developed and formatted for them. Other portable devices that people commonly use to access data are better suited to making use of existing content and formats.

The work was funded by [arcadia@cambridge](mailto:arcadia@cambridge):

The Arcadia Programme is a three-year programme at Cambridge University Library funded by the Arcadia Fund. The grant will enable exploration of the role of academic libraries in a digital age, creation of new programmes and services, particularly for undergraduates -- and also to improve the external environment of the library.

A major part of the Programme is the Arcadia Fellowship Programme which brings talented people from academic libraries and related organisations to Cambridge to work on aspects of this very broad subject. Arcadia Fellows work on projects aimed at increasing the library's capability to provide users with services appropriate to a networked world. Each Fellowship has 'deliverables' (broadly defined) associated with it and findings and outputs are shared with colleagues in the academic library community worldwide. ([arcadia@cambridge](mailto:arcadia@cambridge))

## Methodology

A short online survey was carried out at both the Open and Cambridge universities, asking respondents about their current use of mobile information services such as text alerts, use of SMS reference services, such as Any Questions Answered, and use of the mobile internet. Data from this survey was then used to extrapolate trends which indicate likely uptake if libraries were to offer similar services. Only at the end of the survey were respondents asked questions specifically about library services. As m-library services are such a new concept I felt that respondents might be intimidated or simply put off if they knew from the outset that this was a library-related survey.

Responses were sought from staff and students at both Cambridge University and the Open University (OU). Due to the organisational structure of each institution the methods of promoting the survey to the population differed. At Cambridge the survey was promoted through mailing lists, blogs and news feeds by the 80+ College, department and Faculty libraries. The University Library and the department and Faculty libraries were also asked to hand out small promotional flyers to their users. It was not possible to target specific groups. Conversely, at the Open University the Student Statistics team sent an email promoting the survey to a representative sample of 3000 students, and it was also promoted to staff via the intranet, mailing lists and Faculty-specific library blogs. Table 2 below, shows the proportion of respondents who were staff or students, and what percentage of their total population at each university they represent.

At both universities respondents were offered the chance to enter a prize draw upon completion of the survey.

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**Table 1: Methods of Survey Promotion**

Methods of promotion	Cambridge University		The Open University	
	Staff	Students	Staff	Students
Intranet	Not available	Not available	Yes	No
Library blogs	Yes	Yes	Yes	No
Mailing lists	Yes	Yes	Yes	Not available
Individual email	No	No	No	To selected sample
Promotional flyers	Yes	Yes	No	No
Library website(s)	Yes	Yes	No	No

**Table 2: Survey response rates**

Response rates	Cambridge University		The Open University	
	Response Demogra- phics	Total Populati- on of	Response Demogra- phics	Total Populati- on of
Undergraduate students	49%	6%	46.6%	
Postgraduate students	25%	6%	10.4%	
Associate Lecturers	N/A	N/A	21.4%	2%
Academic staff	9%	6%	9%	6%
Academic-related staff	4%	5%	10.6%	4%
Secretarial & Clerical/Assistant staff	7%	1%	1.9%	13%
<b>TOTAL</b>	<b>1530</b>		<b>776</b>	

<sup>1</sup> Cambridge student numbers are calculated based on the most recent published Full-time equivalent student load. STUDENT NUMBERS 2007–08. 2008. *Cambridge University Reporter*, CXXXIX(Special No.4). Available: <http://www.admin.cam.ac.uk/reporter/2008-09/special/04/studentnumbers0708.pdf>



## Findings

Survey respondents were more positive about accessing information through text messages than through the mobile internet. This can be attributed to both ease of use and perceived cost of the two methods.

Due to the promotional methods used the survey sample was not large enough to ascertain whether the subject areas in which people work or study influence their use of information on the move.

Over 60% of survey respondents have owned their current mobile phone for less than 2 years, which indicates that many of them will have fairly up-to-date devices, with functionality including basic mobile internet browsing. If this percentage of the academic population upgrade their phones every one to two years, it will be important for libraries offering m-library services to track trends in new functionality and new standards in mobile phone handsets. For instance, many phones due to be released in 2009 are imitating the iPhone's touch screen interface and are likely to try and compete with the improved internet browsing experience it offers.

The majority of respondents primarily use their phones to make calls, send text messages and take photographs, although they like to know that the other functionality is potentially available. Respondents' use of different forms of media on their mobile phones was mostly limited to viewing photographs. Some used their phones to listen to music or watch videos, but very few used them to listen to podcasts or audio books and only a small number read e-books or journal articles. Some respondents commented that they prefer to use their iPod or other media player to access these other forms of media.

### ***Text Alerts/Notification***

A number of banks, transport services and so on offer text alerting services. For instance London residents can sign up for text alerts from Transport for London to let them know the status of tube lines on their route. Roughly 32% of all respondents have signed up for text alerts of this nature at some point, and 34% of those still receive them. Two separate pilot studies undertaken at the Open University and the University of Wolverhampton found that students liked receiving text alerts from the university, as long as they weren't too frequent (Brett, 2008), (Carberry, 2008). These studies also found that given the 160 character limit for text alerts they have to be carefully phrased to make sure they are easily understood and don't sound too abrupt.

The enthusiasm for text alerts was greater at the Open University than at Cambridge, but at both institutions a significant portion of respondents currently use text alerting services in some form, and would be in favour of receiving text alerts from the library to let them know when reserved items are ready for collection, when books are due for renewal or are overdue. Overall 21% of all Cambridge respondents were in favour of text alerts from the library, compared to 35% of all respondents at the OU. Comments from respondents indicated that many would like to receive these notifications both by text message and email.

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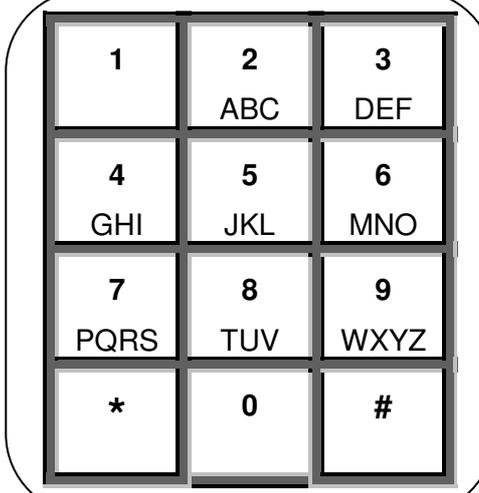
There are a number of services which institutions can use to send text messages from a database or through an email interface. For UK universities the easiest to use is likely to be JANET Txt, provided by JISC, because most universities already use JANET for their computer networks and this service has been set up to easily integrate with Library Management Systems, Virtual Learning Environments plan to pursue the addition of SMS functionality into existing MIS, Library and VLE systems used within the JANET community.

### **SMS Reference**

The term 'SMS Reference' is used here to refer to services which allow the user to send a query by text message and receive a reply the same way. A popular example of this is Any Questions Answered (AQA 63336).

When asked whether they'd ever used such a service, 27% of respondents said they had, and another 26% said they might try it now that they were aware of it. Only 4% of those who had tried it would not use such a service again. From these figures it may be worth piloting a service allowing users to submit queries to the helpdesk via text message. Certainly many libraries which have implemented 'chat reference', allowing users to have a live conversation with a librarian through instant messaging, have found it to be very popular (HVASS 2008). If your library receives a high volume of enquiries which can be answered in 160 characters or less, offering a text message based enquiry service in addition to your phone line may be of value. As with text alerting services, these enquiries could be received and dealt with by staff through an email or web-based interface, which would reduce the amount of time taken to type a reply, compared to using a mobile phone keyboard.

It is common to use 5 digit numbers, known as 'short codes' to make it easier for users to type them in. They're also sometimes based on the letters on the keys the users would be pressing to type the number in, e.g. 28542 for CULib or 68542 for OULib.



1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
*	0	#

**Figure 1: Mobile Phone Keypad**

### **Mobile OPAC**

Staff at Cambridge University Library have observed customers using their camera phones to take pictures of the catalogue results screen, rather than noting class marks on a piece of paper. 50% of respondents at both universities said they take photos of signs, books, etc to save information for later reference. In addition 55% of total respondents were in favour of being able to access the library catalogue from a mobile phone. In the short term, libraries could allow patrons to use their phones within the library as long as they are on silent, or in flight mode. In the long term libraries could work with their Library Management System supplier (LMS) to create a mobile version of their library catalogue. There is already a mobile

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application for OCLC's WorldCat, so libraries who submit their catalogue records to WorldCat could make use of that to pilot the service.

### ***Mobile Content Delivery***

Respondents were asked whether they use their mobile phones for any of the following activities.

	<b>Cambridge University</b>	<b>The Open University</b>
<b>Activity</b>	Percentage of respondents who never do this	
Read an e-book	93.8%	92.3%
Read journal article	91.5%	86.4%
Listen to podcasts or audio books	87.5%	78.1%
Listen to music	60.0%	56.7%
View photos	37.8%	32.3%
Watch videos	69.4%	61.5%

These results suggest it is not worth libraries putting development resource into delivering content such as eBooks and e-journals to mobile devices at present. eBooks are already accessible via some mobile phones, such as iPhones and Windows Mobile devices, and audio files such as podcasts and audio books can easily be played on many mobile phones or portable media players. At present, however, most users are put off by the constraints of the technology, such as poor screen quality. iPhone users are already more inclined to read eBooks on their phones, according to comments from the respondents to this survey.

Athabasca University have developed a Digital Reading room to enable their users to access e-journals, even when the publishers don't support mobile access to their content. However, given the lack of enthusiasm from respondents to this survey, and the advances in mobile internet access libraries in the UK can afford to wait for the technology to make mobile e-journal access possible without developing platforms to facilitate this. The greater challenge will be encouraging publishers to adopt authentication that is not limited by IP address, as that could prevent users from accessing content they have a right to from their mobile devices.

### ***Mobile Internet***

The number of Smartphones available is increasing, but many mobile phone owners still only use their phones for calling and texting. The iPhone has caused an increase in mobile internet use in the UK, and as other mobile phone manufacturers release competitive devices this is likely to increase further. However, the key difference between the iPhone and previous web browsing mobile phones is that the iPhone can comfortably access websites

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intended for larger screens. As this type of device becomes increasingly available it will no longer be necessary to develop mobile-ready websites. Several manufacturers have announced that they intend to release touch-screen phones similar to the iPhone in 2009. It is possible that within the next two years the majority of people who regularly use the mobile internet will have an iPhone-like device, or be using a netbook. The Google Android phone from T-mobile is one example, and others will be available in the UK soon.

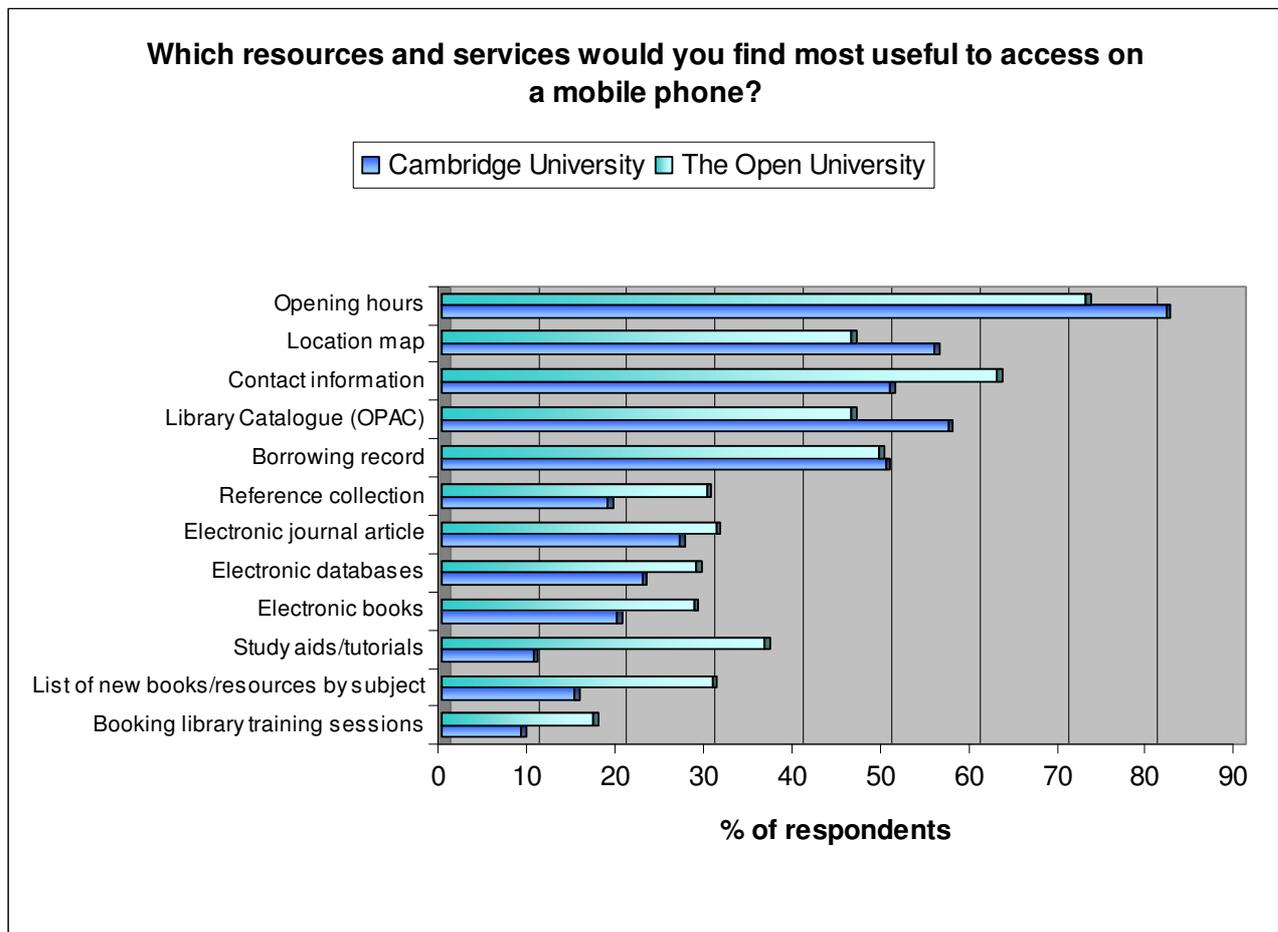
According to a report from Continental Research, the perception of many people in the UK is that the mobile internet is expensive, slow and difficult to use. The report also says:

Internet access has improved significantly in recent years, but the proportion that has used the service has remained stubbornly static and is unchanged over the last year, at 12% of mobile owners. (Mobile Phone Report, 2008).

Several survey respondents commented that they might use it more on a larger screen device such as the iPhone.

Less than 16% of Cambridge respondents use their mobile phones to access the internet more than once a week, and only 25% do at the OU. While this is slightly higher than the national average, one obvious inference to be drawn from this is that it is not worth libraries putting time and effort into developing dedicated mobile websites. Rather, if they want their sites to be mobile-friendly they are better advised to use either (Cascading Style Sheets) CSS or Auto-Detect and Reformat software (ADR), which allows a website to rearrange its content and navigation to suit the size of the screen it is being viewed on. That way websites will look good on all sizes of screens including the popular netbooks and libraries will be well positioned to meet future demand.

Having said that, the survey results show that what people are most likely to look up on the move is the library's opening hours, contact information, the library's location, the OPAC and their borrowing record (see Figure 2), so there may be some value in ensuring those aspects of the website are only one click from the home page.



**Figure 2: Mobile access to library information**

Please note that the survey question about location for Open University respondents was whether they would like mobile access to a map showing the nearest library they could use, as relatively few Open University students are able to visit the university’s own library building in Milton Keynes. Their access to library resources is primarily electronic, but through the SCONUL scheme they are able to use other university libraries as study spaces or for borrowing books.

***Library Applications (Software) for Mobile Phones***

For some years now, people have been creating applications which can be downloaded to mobile phones in addition to the software supplied with them. Examples include mapping software, games, mobile email clients and software which provides a way of uploading photos or other content to the user’s blog or social networking accounts. Until recently the take-up for these applications was relatively low, but iPhone users download a great many more applications than owners of other phones (ComScore 2009). By April 2009 the iPhone App Store had over a billion downloads (Naughton 2009). However ComScore also note that only 3.5% of mobile media users own an iPhone.

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Only 21% of respondents to this survey have downloaded applications to their phones and would do so again. Given the low percentage of iPhone owners in the UK and the proprietary, device-specific nature of iPhone applications, there seems to be little value currently in providing library applications. It would be more cost effective to either provide the same functionality through a website, or develop applications in Java, which will run on most other mobile handsets.

### ***Library Audio Tours***

A quarter of respondents would like access to audio tours of the libraries. Responses indicate that only 9% would download audio tours to their mobile phone, but 16% would download them to their own MP3 player and 19% would like to borrow an MP3 player preloaded with audio tours from the library counter.

## **Conclusions**

Mobile phones are still viewed by the majority of people as devices for making phone calls and sending text messages, so they often don't associate them with other activities, such as information seeking. However, people are increasingly dependent on their mobile phones and there is a growing minority who do use them as diaries, for taking notes and for email and internet access. As a result there may be an increase in expectation from Library users that libraries will provide some services in a mobile-friendly way.

In the UK text messaging is currently far more popular than mobile internet use, but mobile internet use may increase as iPhones, or iPhone-like phones, which make mobile internet browsing easier and faster become more prevalent.

The figures from this research show that too few people in the academic community are using the mobile internet to justify libraries dedicating resource to developing mobile websites. If they did however, information to highlight should include opening hours, contact details and location details. Libraries would be better advised to ensure that their websites are designed to be accessible, as this will to some extent make them more suitable for viewing on smaller or lower resolution screens. Also ensure that your website content can be rendered in a linear way, using Auto-Detect and Reformat (ADR) software or CSS, and don't put too much content on any one page.

It is unlikely that it would be truly feasible to answer complex enquiries via text message. If a user's mobile phone number was associated with their library record longer replies to enquires submitted by text message could be sent by email.

Audio tours can be produced fairly quickly and inexpensively, so libraries which run inductions throughout the year or have a poor attendance rate at induction sessions for new students may find that tours could reduce the amount of staff time spent helping new users to orient themselves in the library and explaining the facilities available. Audio tours can easily be provided both as downloads from the library website, and on devices that can be borrowed from the library counter. In the long run, they could also reduce the number of staff-guided tours, which some library users find irritatingly noisy. One disadvantage of audio tours

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is that they have to be followed in a set linear order. Some users may prefer a simple paper map and guide, or a location aware mobile tour.

Something this survey didn't cover, which is worth piloting, is allowing users to respond to text alerts using single words or short phrases to act on the alert they've been sent, as in the examples given below. This gives users the opportunity to respond to an alert immediately, rather than having to remember to act on it later.

**Table 3: Text alerts and responses**

<i>Alert</i>	<i>User response</i>	<i>Library action</i>
[Item title] is due for renewal in 1 day. Reply with 'RENEW' to keep this item or 'RENEW ALL' for all loans.	RENEW RENEW ALL	Renews named item Renews all loans
The item you reserved is ready for collection. [Item title]	CANCEL	Cancels reservation as user no longer needs that item.
	STOP	Stops sending notifications as text messages, reverting to email.

The functionality of mobile phones and the availability of services from network providers will continue to change, so enthusiasm for m-library services from users may increase.

## Recommendations

These recommendations are based on the combined responses from both Cambridge and the Open University and are therefore very general. Specific recommendations have also been written for the two institutions based on results specific to them.

Higher Education libraries should consider

- **Piloting text alerting services** - giving users the opportunity to choose whether they want notifications by text message, email or both are likely to be taken up by at least a third of library users. These alerts would include the notifications automatically generated by the Library Management System (LMS).
- **Piloting a text reference service** – if the library receives a high volume of enquiries that require brief responses, such as dictionary definitions, facts or service information from the library.
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- **Ensuring that the library website is accessible and will resize to smaller screens** – in order to be ready for increasing numbers of netbook users and mobile internet users in the next few years.
- **Providing audio tours of the library** - to help visitors or new users orient themselves and learn more about the service.
- **Allowing mobile phone use in the library** - as long as they are set to silent or to flight mode (meaning they are not receiving a signal).

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