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Are students ready for QR codes? Findings from a student survey at the University of Bath.

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Information Sheet

This working paper was written by members of the e-learning community at the University of Bath. If you'd like to access other working papers, presentations or posters given by the e-learning team at the University of Bath then see our Online Publications Store, <http://opus.bath.ac.uk/view/divisions/elearning.html>.

If you have any questions about this paper then please contact the author directly.
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I'd like to acknowledge the comments from Geraldine Jones on an earlier draft of this working paper.

Introduction

This document is part of a series of reports commissioned by JISC on the potential for using QR codes in learning and teaching.

There is a growing interest around the use of QR Codes in learning, teaching and assessment (<http://mobile-learning.blog-city.com>). This is starting to generate some very interesting applications for this technology in education (see http://blogs.bath.ac.uk/qrcode/category/ideas_factory/). However, to date there has been little research or discussion around the issue of student access and any likely support needs.

This working paper aims to investigate the issue of student access through the analysis of a recent student survey undertaken at the University of Bath.

We aim to answer the following questions;

- Do students know what a QR code is?
- How many students have accessed a QR code on their mobile device?
- Given students' current mobile device ownership patterns, are they currently able to access QR codes?
- What support will students need to be able to access QR codes?

The findings suggest that one in ten students are aware of what a QR code is. One in 50 have accessed QR codes, and the majority of students currently own a mobile phone that can read QR codes.

The methodology

The data was collected through a student survey at the University of Bath. The survey focussed on student awareness of QR Codes and their mobile device ownership. The survey ran between 30th October 2008 and 3rd December 2008.

The survey was publicised through an announcement on the institutional VLE. Whenever a student accessed Moodle they would see the request to participate and the reference to the prize draw for an iPod or Nintendo DS. See appendix 1 for a copy of the questionnaire.

In total 1790 students completed the survey, equating to a response rate of approximately 17% (based on an FTE of 10,493). The possibility of bias due to the small, self-selecting sample has been noted.

The findings and discussion

A number of questions were used to identify the current awareness of QR codes. It was indicated that 13.8% (n=1790) know what QR Codes are. Therefore, given a confidence interval of 95%, it can be stated that between 12.34% and 15.26% of the total student population at the University of Bath are aware of QR Codes.

When the responses were filtered by Gender and Age (see Table 1), it appeared that males were much more likely to know what a QR code was, while age seemed to have little impact on awareness.

Table 1: Respondents who knew a QR code by Gender and Age (%)

Age Range	Male	Female
18-19	20.4 (n=393)	5.0 (n=326)
20-21	19.4 (n=286)	8.9 (n=274)
22-23	18.3 (n=106)	9.5 (n=96)
24-25	22.2 (n=29)	6.5 (n=47)
26 & over	17.1 (n=105)	13.0 (n=108)

At one level, for the author these findings are very pleasing. They indicate that one in ten students already know about QR Codes. However, it also indicates that nine in ten

currently do not. This indicates the importance of providing appropriate support mechanisms for students if they are to start accessing QR codes.

Given that many students already are aware of QR codes, The next question to be answered is how many have already accessed a QR code?

When asked, 2.2% (n=1552) or 34 people had previously accessed a QR Code. Therefore, given a confidence interval of 95%, it can be stated that between 1.58% and 2.82% of the total student population have accessed a QR Code. This was explored further by asking students about the reason why they had accessed QR codes. The results indicated the most common task was accessing a web site (33). This was followed by accessing text (28 responses), phoning a number (19 responses) and sending a pre-written SMS to a designated number (12 responses).

Our final question was whether students were capable of accessing (reading) a QR Code using the technology in their pocket. This involved asking students a number of questions about the mobile devices they own. 92% of respondents reported owning a camera phone. Many respondents (79.3% n=1699) did not know whether their mobile device incorporated a QR code reader. Although the responses did indicate that 1.9% owned a device with a reader, 18.7% or respondents reported that they did not. To try to unpick the “I don’t know” group, a follow up question asked for the make and model of their phone (see Figure 1). Figure 1 illustrates the most commonly owned devices are iPhones, the N95, K800i and U600. The 14 most popular devices were then cross-referenced with Kaywa, Quickmark, SnapMaze and i-nigma QR Code readers (see Table 2).

Figure 1: Student response to device ownership

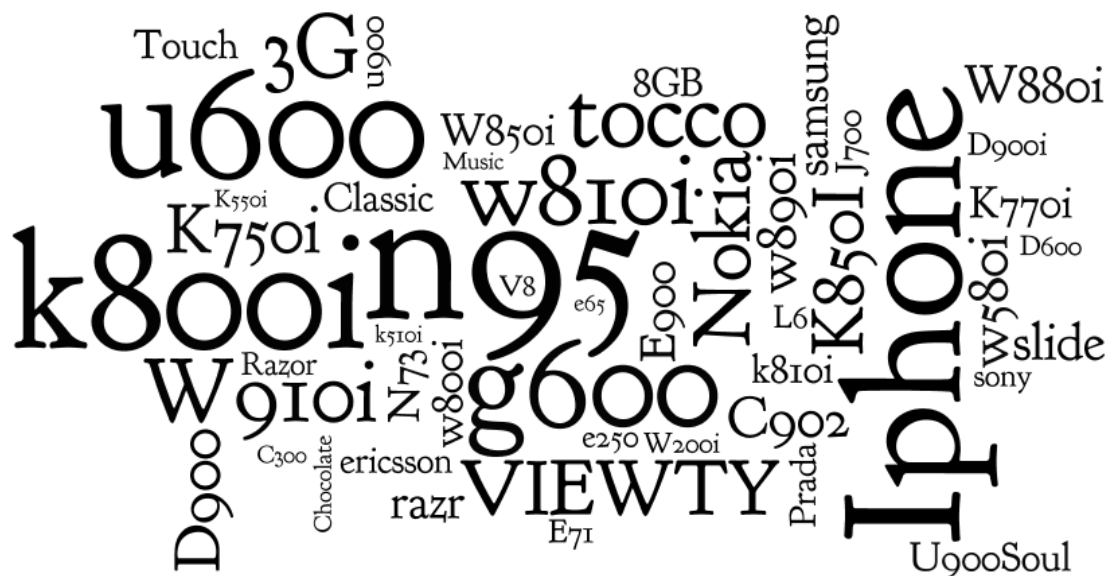


Table 2: Availability of QR Code readers for the most popular devices

	QR Code Reader	Compliant with SnapMaze QR Reader (MIDP 2 / CLDC 1.1)
K800i	*	*
G600		*
Tocco		*
W910i	*	*
W810i	*	*
K850i		*
K750	*	*
D900		*
Viewty		*
C902		*
K770i		*
iPhone	*	*
U600		*
N95	*	*

Table 2 indicates at the time of writing from the list of the 14 most popular devices, only 6 have a QR code reader available specifically for that model. Interestingly, they should all be able to use the SnapMaze QR Code Reader that works on devices with MIDP 2.0, CLDC 1.1. However, this has not been tested.

At one level these findings raise concerns about equitable access, and indicate that alternatives will need to be available when designing a QR code based activity. For example, if QR codes are used to link to a web site, then the URL should also be made available. However, at another level these findings are encouraging, as QR codes are a relatively new and emerging technology, and they suggest that many software developers are factoring in the potential for QR code use through the development of relevant applications for the different devices.

Our final question is; what do these findings tell us about student support requirements?

Broadly, it is evident that QR codes are still an emerging technology. Therefore, any implementation will require a significant amount of support. However, this support is probably best provided online, with a QR code information hub. This should answer the following key questions; What is a QR code? What do they do? How might they be used? Where can one find QR code readers for mobile devices?

An example of an emerging QR Code Information Hub is <http://www.bath.ac.uk/barcode>. It could be argued that, as a QR code is a low threshold technology, if students are given the opportunity to access QR codes from a coordinated implementation by Academics, Library and Student Union, support can be provided through peer to peer approaches.

Conclusions

In conclusion, the survey findings indicate that QR codes are still very much an emerging technology with relatively low student awareness. However, there are some very encouraging signs in terms of the the potential for students to access QR codes. It is clear that if QR code use is to be implemented across HE, there is a key role for an information hub that answers key questions in terms of what QR codes are, what they do and how to get QR code reading software onto a phone or other mobile device.

Further Reading

Information from the University of Bath

These two blogs focus on recording and reflecting on the roll-out of QR codes in learning and teaching at the University of Bath.

- QR Codes Blog (<http://blogs.bath.ac.uk/qrcode>)
- Section in Andy Ramsden's Mobile Learning Blog (http://www.mobilelearning.blog-city.com/read/qr_codes.htm)

Other working papers in the series

- Ramsden, A., 2008. *The use of QR codes in Education: A getting started guide for academics*. Working Paper. University of Bath, <http://opus.bath.ac.uk/11408/>

Appendix 1: Student Survey at the University of Bath (December 2008)

Section 1: a little bit about you

1. What is your gender?
 - Male
 - Female
2. Please select your age range (years)
 - 18-19
 - 20-21
 - 22-23
 - 24-25
 - 26 and above
3. Do you know what a QR code is?
 - Yes
 - No

Section 2: What type of phone have you got?

4. What make is your phone?

5. What model is your phone?

6. Does your phone have a camera?

- Yes
- No

Section 3: Accessing a QR Code on your mobile phone?

7. Does your device have a QR Code reader (software) installed?

- yes
- no
- no idea

8. If you answered yes to the previous question, then what is the name of your qr code reader?

9. Have you ever scanned a QR Code on your mobile device?

- Yes
- No

10. If yes, what type of action(s) did it want you to undertake? You can select more than one

- Send you to a web site
- Access some text
- Send a pre-written SMS to a designated number
- Phone a number
- Other