Swedish
Institute of
Computer
Science

SICS

MobileLife

QR code awareness in Stockholm, Sweden

Contacts:
Sebastian Büttner, Mobile Life @ SICS, sebastian@mobilelifecentre.org
Zeynep Ahmet, Mobile Life @ Stockholm University, zeynep@mobilelifecentre.org
Henriette Cramer, Mobile Life @ SICS, henriette@mobilelifecentre.org

Study performed: Sep 2010
Tech Report public: Dec 2011

Summary
This tech report describes the findings of a street survey on awareness of QR codes (2D barcodes) of the general public in Stockholm, Sweden. 108 passers-by were surveyed. Of these participants, a large majority (77%) did not recognize a QR code, and 8% reported seeing such a code before, but did not know it could be scanned using a mobile phone app. Only 15% knew what the shown QR code was, and that it could be read using a QR code reader on a mobile phone. The awareness of QR codes by the general public could be considered rather low, and their utility in Swedish public settings is currently debatable.

Part of the φ² (PhiSquare) project, part of the Mobile 2.0 project at Mobile Life @ SICS.

Mobile2-0.blogspot.com
Mobilelifecentre.org
SICS.se

QR code awareness in Stockholm, Sweden

Despite the apparent growing usage of QR codes in a variety of settings, including street advertising, it is currently unclear whether the general public is aware of what QR codes are, and how to use them.

Results of previous studies on the awareness of QR codes differ in their findings. A study among UK students in late 2008 [3] showed that only 13.8% of the surveyed students knew what a QR code was, and only 2.2% had scanned one with their mobile phone. In contrast, a Japanese Internet survey in mid 2009 [4] indicated that 66% of Japanese respondents had used a QR code. In an online survey by a social media marketing agency focused on the US market in late 2010 [1], 52% of the respondents were reported to be aware of QR codes, with 28% having used one in the past.

International differences appear large, and awareness may increase over time. Publicly available data on current QR code awareness in Sweden, with its relatively large numbers of smart phone users, and high 3G penetration in urban settings, is scarce. We here report the findings of a street survey in Stockholm, Sweden performed in late 2010.

Survey Procedure

The survey was conducted by two researchers, approaching passers-by. Participants were approached on the "Sergelstorget" square, adjacent to Stockholm central station.

Participants were shown a paper with a printed QR code. The code contained an URL to mobilelifecentre.org. Apart from the QR code, generated at QRserver.com, the A4 paper was blank. Participants were shown the page with the QR code, and asked "Do you know what this is?". If they indicated they did, they were asked to describe what it was and how they would use it. If indicated they did not, they were asked if they had seen it before.

108 passers-by took part in the study. 67 were male and 41 female. Ages ranged between 16 and 64, with an average of 27.5. Participants included 25 students and 22 pupils/highschool students. Professions of the other participants were varied and included for example customer care / sales personnel (9), hair dressers (5), journalists (3), researchers (2), a member of parliament, and a variety of other occupations.

Answers were classified in three groups:
- Fully aware: Participants, who appeared to recognize the print as a QR code, knew what a QR code was, and knew they could scan it with a mobile phone to for example look up information.
- Seen before, but unaware of personal utility: Participants, who appeared to recognize the QR code as something they had seen before in some context, e.g. in a newspaper, or on a lottery or train ticket, but did not know they could personally use it with their mobile phone.
- Unaware: Participants, who appeared to have never seen, or noticed, a QR code before.

Results

Of the 108 participants, a large majority of 83 participants (77%) did not recognize the QR code, and stated they had not seen anything like it before. When asked what the code represented, the most frequent references made were patterns, emerging pictures, and references to mazes and even Rorschach tests.

8% reported seeing a similar code before, but did not associate them with mobile phones, nor knew that they themselves could scan them using a mobile phone app. Answers in this

category included for example "It's like a code, there are those on tickets, some sort of verification", "Like something on a lottery ticket that you're not supposed to scratch".

Only 15% knew what the shown QR code was, and that it could be read using a QR code reader on a mobile phone. These participants explicitly referred to the code as a QR code or 2D barcode, and/or indicated they knew could scan such a code with their phone, or had used it in the past.
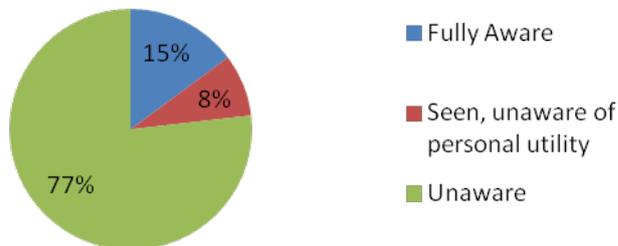

Figure 1 - QR code awareness in Stockholm

Results differed between male and female participants. 22% of the 67 male participants appeared fully aware of the usage of QR codes, while only one of the female participants (1/41, ~2%) knew how to use such a code with a mobile phone. 72% of the male participants and 85% of the female participants did not recognize a QR code at all.

	Fully Aware	Seen, unaware of personal utility	Unaware
Male	15 (22%)	4 (6%)	48 (72%)
Female	1 (2%)	5 (12%)	35 (85%)
Total	16 (15%)	9 (8%)	83 (77%)

Figure 2 - QR code awareness in Stockholm by gender

When considering the age of participants, QR code awareness appeared lowest among adolescents and those over 35.

	Fully Aware	Seen, unaware of personal utility	Unaware
<18	0 (0%)	1 (6%)	16 (94%)
18-25	10 (24%)	4 (10%)	27 (66%)
26-35	5 (16%)	4 (13%)	22 (71%)
>35	1 (5%)	0 (0%)	18 (95%)
Total	16 (15%)	9 (8%)	83 (77%)

Figure 3 - QR code awareness in Stockholm by age

Implications

While this informal survey has its limitations, we can however conclude that the awareness of the general public in Stockholm of QR codes and how to use them is rather low. The current value of adding QR codes to support casual mobile interactions and for example street advertising appears questionable. Considering that multiple billboards and advertisements used QR codes at time of the survey, the number of users stating to have even seen such barcodes is surprisingly low.

QR codes themselves offer no hints on what they are exactly, and how they can be used. It has to be noted that this was an informal survey, in which one QR code was presented to participants without any context (e.g. not in an ad, no mobile phone graphics etc). One participant for example did indicate that on first glance he did not understand what the code was, and that its printed size was different from the context in which he had seen them

before. However, without 'instructions' on their function it appears unlikely that current consumers will recognize QR codes or know what to do with them. An additional concern is that in many cases what scanning the barcode will result in for consumers is not clear.

In addition, not all current smart phones come with a QR code scanner app pre-installed, adding additional hurdles for end-users. Whether the intended audiences are willing, and able, to follow instructions to download a scanner app onto phone, start the app, scan the code, and then get to the actual content for casual, in-passing interactions is rather doubtful. Our survey did not distinguish between those participants who indicated they knew a QR code could be scanned using a mobile phone, and those that had actually done so in the past - nor were participants asked to scan the code on the spot. This indicates that the actual success rate of QR code usage could even be lower. This was also hinted at by a small-scale informal study in New York in 2011 with 28 participants reported on Urbanscale.org showed that only 2 participants were successfully able to use QR codes to resolve a URL [5].

Over time, familiarity with QR codes may increase. Follow-ups focusing on different designs, and presenting codes within a more elaborate context and with 'instructions' could also provide other results. However, the current potential of QR codes for general-purpose uses 'on the street' in Sweden, and to for example provide additional information in advertising appears limited.

Additional information

This study was performed as part of the φ² / PhiSquare project (phisq.mobilelifecentre.org), which explored different ways of physical check-ins for location-sharing. The 'φ² Scanner' was released as an Android app enabling check-ins on location-sharing service foursquare by scanning 2D barcode stickers. The φ² website allowed users to generate their own QR-codes for venues. The project overall focused on the user experience of introducing physical artefacts, such as QR code stickers, in mobile interactions. Beyond the concerns surrounding (un)familiarity with QR codes, this project highlighted issues surrounding involving users in the spread of infrastructure and as de facto service representatives; ownership of physical 'places'; increased visibility of interactions within social settings; and durability. More extensive information on this project is available on request.

References

1. Austin-Williams.com. QR Code Awareness. http://bit.ly/belre6, Nov., 10, (2010).

2. Büttner, S., Cramer, H., Rost, M., Belloni, N. and Holmquist, L.E. φ²: Exploring physical Check-Ins for Location-Based Services, Extended Abstracts UbiComp 2010, Copenhagen, Denmark, (2010).

3. Ramsden, A. and Jordan, L. Are students ready for QR codes? Findings from a student survey at the University of Bath. Working Paper. http://bit.ly/dJWeMk (2009).

4. Whatjapanthinks.com. QR code-reading phones held by almost four in five Japanese. http://bit.ly/HyWlm, July, 05, (2009).

5. Greenfield, A. / UrbanScale.org. Week 46: QR or not QR. http://urbanscale.org/2011/11/20/week-46-qr-or-not-qr (2011).