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Ken Banks offers coaching, mentoring and strategy support.

REACHING OUT THROUGH MOBILE TECHNOLOGY WITH THE HUMBLE SMS

By Ken Banks

Imagine two mobile phone users. One lives in The Land of Plenty and owns an iPhone. He or she can access the internet via free wireless connections dotted around the city, download and play games, keep in contact with friends and family via instant messenger (IM), watch streaming video and live TV and use as much data, SMS or voice as they like with a cheap all-inclusive price plan. The other lives in The Land of Less. He or she uses a shared phone, lives in an area not covered by a data network of any kind, has a sporadic signal, a phone technically incapable of playing games or video and has to think twice before sending an SMS or making a voice call because of constant concerns over airtime credit, not to mention worries over how the phone will be recharged if the mains electricity doesn't come back for days.

Both of these scenarios, extreme as they are, are real. But don't assume for one minute that Plenty is in the West and that Less is in the South. The split is never as clear as that. What these examples do succinctly highlight are the kinds of challenges that mobile developers face the minute they step out of their comfort zones.

Earlier this year I was invited to the 16th International World Wide Web Conference in Banff, Canada. I was there to take part in two separate tracks, although the topic was the same – how the mobile phone might help close the digital divide in the developing world. My talk on the first day was more general, discussing the delivery of targeted information – health messages, wildlife alerts or market prices, for example

Text messaging, or SMS, is universally available to mobile owners the world over, and is relatively cheap, direct and gets around many of issues of literacy. Although based more in the administrative side of education, a number of African countries allow students to obtain their exam results by SMS, or check whether they have successfully enrolled on a course.

– via text message (SMS) – and the importance of understanding the complex cultural issues which surround technology adoption in places like Africa, a place where I have done most of my work. On the second day I sat on an Expert Panel discussing something a little more specific – access to the internet via mobile devices under the same developing country conditions.

I started my Panel discussion with a short description of what I considered Utopia, the ideal conditions under which we'd all like to be working. It went something like this:

"Everybody, everywhere wirelessly communicating and accessing a whole range of personally relevant information whenever they like using a wide variety of compatible devices at high speed and low cost."

This, of course, isn't realistic anywhere, let alone many developing countries, at least not yet. But the specific problems of web delivery in these places are not dissimilar to those faced by anyone looking to work with mobile technologies in the developing world. And, as you would expect, the mLearning community is not exempt. Ageing handsets, limited functionality, lack of bandwidth, issues of literacy and cost are just some of the barriers, and there are many. It is these barriers that I propose to discuss a little later in this paper.

But for now let's imagine, for one moment, that we are living in Utopia and almost anything is possible. The sky's the limit! What would that 'look like'? Given a high-end mobile device – mobile phones, personal digital assistants (PDAs), pocket PCs and even things like iPods – what could we do? More to the point, what would students require it to do to make their learning experience more engaging, enjoyable and productive, assuming these are key objectives? Would their mobile learning experience be largely based on video lectures? Collaboration with other students via online blogs and wikis? Playing games and "learning by doing"? Schooling in a virtual world with virtual classmates, teachers and desks? Pitting students against one another through online spelling and maths competitions? Mobile-delivered examinations? All of these? More?

Some of these things, of course, are already happening. The University of California in Berkeley only last month began posting entire lectures on YouTube and, of course, YouTube content is accessible via mobile devices. A lecturer at Bradford University in the UK early last year went as far as abolishing traditional lectures altogether in favour of podcasts, in his words "freeing up more time for smaller group teaching". And children can learn to count, spell or even play guitar using Java-based mobile games, downloadable from the internet or directly onto their phones via a carrier portal. But how does any of this fit into the context of mLearning in developing countries, if at all?

The closer you are, of course, to the optimum device and network conditions the more things become possible. Three projects highlighted below take advantage of some of these optimum conditions, but use the technology in slightly different ways and aim at subtly difference target audiences. The first, wildlive!, sets out to raise awareness of wildlife conservation among the wider general public, whoever and wherever they may be. The second, Freedom HIV/AIDS, was more specific, targeting members of the public in largely developing countries particularly at risk from contracting the disease. And the third, Dunia Moja, is a lecture and class-based education tool aimed at a controlled group of students taking a particular university course.

wildlive!

As 2002 came to a close, a visionary team at Fauna & Flora International – a Cambridge (UK) based conservation organisation – began looking at ways emerging mobile technology could be used to promote their international conservation effort. A new breed of handset was coming to market, with colour screens, internet access, video capability, cameras and the ability to play games. wildlive! was launched in the UK in 2003 and then across Europe in 2004, and adopted a combined web- and WAP- approach, meaning that it provided conservation content on the internet and mobile phones. News, diaries, discussions and other information was added to the website which was then in turn rendered for mobile devices accessing via the Vodafone network. A community of interest was created, allowing users to contact others with similar ideas and views, and a wide range of conservation-based resources and downloads were made available online. Among this innovative range of content was five mobile games which taught users about gorilla, turtle and tiger conservation while they roamed around a mixture of environments. Another was a 500-question quiz based on zoology and biology. The project received considerable attention, was nominated for an award, and is still seen as groundbreaking today.

Freedom HIV/AIDS

Originally developed for the Indian market, Freedom HIV/AIDS was launched on World AIDS day 2005 and sought to use mobile phones to take HIV/AIDS education to the masses. A number of games were developed including "Penalty Shootout" and "Mission Messenger". In the shootout game, the player was given points for saving penalties, and received tips on how to avoid HIV/AIDS transmission. At the same time it sought to dispel myths surrounding the disease. In the second game, the player 'flies' across the African continent distributing red ribbons and condoms, spreading messages of HIV/AIDS awareness, prevention, transmission and safety. The games were originally developed for the Indian market but have since been translated into a number of African languages.

Dunia Moja

Dunia Moja, or one earth in Swahili, seeks to use "mobile technologies to connect international students and faculty to stimulate learning and debate in environmental sciences". This innovative project, piloted in 2007, was a collaboration between Stanford University and three African academic institutions – the University of the Western Cape in South Africa, Mweka College of African Wildlife Management in Tanzania, and Makerere University in Uganda. The project used high-end PDAs to allow students to download and watch video lectures from academic staff in each of the partner universities, and contribute to the discussion and debate through mobile blogging to a central website. The course was

centred around global environmental issues and their impact on the African continent and the United States, and brought local perspectives and viewpoints to bear on the course topics. Faculty and students from the four participating institutions electronically shared course materials, exchanged information and contributed their own course content. In mLearning in developing country terms, Dunia Moja is a pioneering first.

As these three interventions show – and there are many more I could have chosen from – much is possible if you have higher-end devices and a fast, reliable data network at your disposal. In The Land of Plenty the sky really is the limit. In The Land of Less, however, we have fewer choices.

Furthering the advance of mLearning in developing countries is governed by a combination of three key constraints, two of which are technical. There are other non-technical ones such as literacy, language and cost which I won't cover here. Depending on the target area, none or all of these may apply. I consider these issues to be as follows.

Mobile ownership. Although growing at a phenomenal rate, mobile ownership in many developing countries is still relatively low, and nowhere close to the near 100 percent penetration rates that we see in many mature markets. If educational establishments begin to embrace mobile technology to any significant extent, then issues of ownership and access to handsets by students needs to be addressed to ensure that, in the words of a recent American president, "no child is left behind". Putting learning tools in the hands of children in developing countries is a key objective of the One Laptop Per Child project. Many people believe that the mobile phone would be a better tool to work with. The debate continues.

Mobile technology. Where pupils do own, or have access to, mobile phones, more often than not – and this is particularly the case in many rural areas – these phones will more likely be either older models, or lower-end handsets with limited functionality. In order to develop appropriate teaching tools, the reality of the target market needs to be considered. Ownership and use of PDAs and Pocket PCs should most likely be considered non-existent by the wider community.

Network access. Higher-end handsets with data capability are only useful in areas where the mobile network can service them, and where costs of data access are not prohibitive. In many cases neither of these are a safe bet. By way of an example, during a recent one month visit to Uganda working with Grameen, I was unable to connect to the internet using my phone approximately 90 percent of the time.

Despite these issues, there is still much that can be done. Text messaging, or SMS, is universally available to mobile owners the world over, and is relatively cheap, direct and gets around many of issues of literacy. Although based more in the administrative side of education, a number of African countries allow students to obtain their exam results by SMS, or check whether they have successfully enrolled on a course. SMS is also being used to alert parents if their children haven't turned up for school. There are many more examples, too many to list here. During a recent online discussion about the potential of mobile technology in eLearning, a number of initiatives were discussed including the texting of homework to students, or the ability for students to text in their homework answers or for SMS to be used as a reading aid. With some children living far away from their nearest school, such initiatives could be revolutionary. And with products such as FrontlineSMS, implementing such projects need not be expensive or technically out of reach. Today it is more about "blue sky thinking" than the sky being the limit. But it will not always be this way.

Mobile technology has revolutionised many aspects of life in the developing world. The number of mobile connections has almost universally overtaken the number of fixed-lines in most developing countries in the blink of an eye. If further evidence were needed, recent research by the London Business School found that mobile penetration has a strong impact on GDP. For many people, their first ever telephone call would have been on a mobile device.

Perhaps, in the not-too-distant future, their first geography lesson will be on one, too.

The sources discussed are accessible on the following websites:

"wildlive!" at http://www.kiwanja.net/wildlive!.htm
"Freedom HIV/AIDS" at http://www.dgroups.org/groups/oneworld/OneWorldSA/index.cfm?op=dsp_showmsg&listname=OneWorldSA&msgid=498250&cat_id=513, 30th November, 2006
"Dunia Moja" at http://duniamoja.stanford.edu
"FrontlineSMS" at http://www.frontlinesms.com ■

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