Bloomsbury Colleges PhD Studentship 2010

Mobile Learning for Development: Participatory Design of an Open Mobile Knowledge Exchange Network for the Detection, Identification and Monitoring of Infectious Disease

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To apply for this studentship, please see:

http://www.bloomsbury.ac.uk/studentships/studentships2010/mob_learning_inf_disease

Introduction

Technology has always played a part in human development, but recent advances in computing devices, wireless technologies, and the Internet have come to the fore as potential facilitators for global development (Winters and Toyama, 2009). Our motivation is to see technology directly benefit marginalised communities around the world and education is a key part of this.

In developing regions, particularly in Africa, learning is increasing supported by mobile rather than desktop technologies. The continent has the world's highest mobile phone growth rate and ~300 million subscribers (and potentially many more as users often share phones). However, while studies have investigated how motivated experts in the 'developed world' use mobiles for learning (e.g. Roschelle, 2003), determining how to support African mobile learners in their own socio-cultural contexts is a significant challenge and remains under-researched.

Aligned to this widespread uptake of mobile phones, researchers have investigated how mobile tools can support various health initiatives, one of which is the detection, identification and management (DIM) of disease. However, as detailed in the OSI's Foresight document (Barker et al., 2006), a critical "user challenge" is to understand the "barriers and enablers affecting the development and effective implementation of the DIM systems". One of these enablers is investigating the ways in which mobile technologies can support health practitioners in sharing and reflecting upon their practice. The overarching aim of this studentship is to work with a community of veterinary practitioners to co-design and develop a sustainable open knowledge exchange network, termed OpenKXnet, where they can discuss and share information about infectious disease detection, identification, and management practices entirely using their mobile phones.

The following scenario is representative of what will be developed as a result of this studentship:

> Rashid is a Tanzanian vet overseeing 20 vet assistants who work directly with rural farmers. The main challenges they face surround the detection, identification and monitoring of

infectious diseases. To help address this, Rashid set up an OpenKXnet and has produced two short 3-minute video clips on how to detect and identify East Coast Fever (ECF). These are exchanged and critiqued by his vet assistants via their phones. Based on conversations with Watende, a local farmer, on how he detects the early signs of ECF, one of the vet assistants, Kisima feels that this information would be useful for other assistants. She suggests the assistants use an audio clip she recorded when they visit farms to help local farmers learn more about early warning detection.

Rashid also uses his phone to record and analyse DIM data submitted via SMS by his assistants. Via this analysis he has identified topics critical to his vet assistants' needs and can now produce *context-specific* OERs, which address these needs.

This vision will be realised through four objectives:

- Provide vet and vet assistants in Sub-Saharan Africa with the capacity to develop their own open educational resources (OERs) using mobile phones
- Iteratively design OpenKXnet to support knowledge construction through collaboration using participatory design techniques
- Evaluate how OpenKXnet is used by the vets and vet assistants to learn about the DIM of infectious diseases
- Determine the factors for sustainable implementation of OpenKXnet

By addressing these objectives, the following research challenges will be met: (i) understand how mobiles are used for DIM in the field; (ii) how analysis of mobile data can support the development of educational resources; and (iii) the role of knowledge exchange within a learning community to support DIM.

The overall methodological approach is that of a *design experiment* (Cobb et al, 2003) characterised by iterative cycles of design, implementation and analysis. The research will run in four phases over 3 years (October 2010 - September 2013):

Phase 1: Understanding the theoretical and empirical spaces (12 months)

- Interdisciplinary literature review on mobile learning, ICT4D, mHealth, OERs and DIM
- Undertake ethnographic fieldwork (Barab, 2004) to understand current use of mobiles and how OpenKXnet can be designed to integrate into this setting
- First pilot version of OpenKXnet developed

Phase 2: Iterative development (12 months)

- Roll-out of pilot version
- Run a series of three participatory co-design workshops (e.g. Muller, 2007) to iteratively develop OpenKXnet and the associated content, and support development of vets "attitudes, values and identities relevant to a learning

society" (see the ESRC-TLRP http://www.tlrp.org/aims)

- Run an extended user trial to determine how vet and vet assistants engage with OpenKXnet, in particular the nature of their collaborative learning

Phase 3: Refinement, extended use and evaluation (9 months)

- Vets will take more responsibility for creating OERs and will choose which ones to further use and evaluate.
- Qualitatively assess how OpenKXnet promotes understanding of DIM and supports collaborative knowledge construction
- Final version of OpenKXnet produced

Phase 4: Final Release (3 months)

- OpenKXnet system released
- All OERs made freely available and associated documentation (including tutorials) produced in support of community take-up

The outcomes will be:

- OpenKXnet system
- Analysis of the role of mobiles for knowledge sharing and production
- Locally produced OER resources on DIM of infectious diseases

The PhD will be undertaken at the Institute of Education with appropriate training courses being provided by the Doctoral School. The successful applicant will be able to attend seminars and talks at both Institute of Education and the Royal Veterinary College and will be based at the London Knowledge Lab. The interdisciplinary nature of the PhD will provide the research training to contribute to both pedagogical design of knowledge exchange networks and analysis of the effective implementation of the DIM systems. The PhD will be co-supervised by Niall Winters and Nick Short.

The Candidate

The ideal candidate will have a passion for working in developing regions. They will have a keen interest in the development of learning interventions for veterinary practitioners. While some technical expertise is of benefit, it is not essential, as the necessary training will be provided. All candidates will need to meet the Institute of Education's PhD entry requirements:
http://www.ioe.ac.uk/study/researchDegrees/RMP9_EDU999.html

Funding

The Bloomsbury Studentships cover course fees (at the usual level for UK and E.U. studentships) and a student stipend. The London International Development Centre will cover fieldwork costs.

Further background

London Knowledge Lab: http://www.lkl.ac.uk

Institute of Education: http://www.ioe.ac.uk/about.html

Doctoral School at the Institute of Education: http://www.ioe.ac.uk/study/departments/351.html

Royal Veterinary College: http://www.rvc.ac.uk/AboutUs/Index.cfm

London International Development Centre: http://www.lidc.org.uk/about.php

Technology enhanced learning research programme: http://www.tlrp.org/tel/

MobileActive: http://mobileactive.org/

Spatial Epidemiology: http://www.spatialepidemiology.net/

Participatory Epidemiology: http://www.participatoryepidemiology.info/

Google ODK: http://code.google.com/p/open-data-kit/

Androids in Africa: http://androidsinafrica.blogspot.com/

Mobile Learning for Development: http://www.ml4d.org

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