Enhancement of In-Service Teachers Training Programme through Mobile Phones in Tanzania

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Introduction

Spurred on by the development of ICT technologies, learning and teaching practices are changing in Africa as well as in the rest of the world. This change is particularly evident in distance learning, where computers, but also other technical devices, are opening up for new modes of distributing learning materials and also for enabling communication between course participants. In an ongoing project in Tanzania for in-service education of secondary school teachers, the use of mobile phones for teaching and learning, both for communication and as media players, is tested.

In Tanzania the greater number of primary school leavers has created a shortage of secondary school teachers with adequate capacity. At the same time, the Ministry of Education and Vocational Training in Tanzania (MoEVT) has developed an ICT Policy for Basic Education. The MoEVT believes that the use of ICT in teaching and learning as well as administration and management provides a powerful tool to achieve educational and national development objectives. [1]. The project "ICT-Based In-Service Teacher Education for Secondary School Teacher in Tanzania" (ICT BITES) is one such initiative. It was set up to deal with the above mentioned shortage of qualified teachers. [2]. The project was initiated by MoEVT and is funded by SPIDER, The Swedish Program for ICT in Developing Regions. [3].

There is a special focus in the project on in-service education of "licensed teachers", teachers with only a few weeks of formal teacher education. A number of these licensed teachers are enrolled in an education program run by the Open University of Tanzania. It is planned that 50 students in this group shall participate in a project pilot, using ICT, including mobile phones, to increase their capacity as teachers.

Why Mobile Devices?

At present we can find a number of mobile devices which can provide almost all of the services that was provided by the stationary personal computers in the past. The cost associated with these mobile devices is also decreasing. An added advantage is that they have lower power consumption and usually operate from batteries, which makes them less dependent on an uninterrupted power supply. Wagner stated in 2005 that "the mobile revolution had finally arrived: Wherever one looks, evidence of the impact of mobile devices on everyday life is evident: cell phones, PDAs, MP3 players, portable game devices, handhelds, tablets, and laptops abound. No demographic is immune from this phenomenon. From toddlers to seniors, people are increasingly connected and are digitally communicating with each other in ways that would have been impossible only a few years ago" [4]

Increased access to learning materials and mobility are two affordances of mobile devices that can enhance the learning process. Teachers can provide learning to students irrespective of geographical
constraints, and the student can learn what and where they want to. Moreover, mobile technologies have the potential to “support learning experiences that are collaborative, accessible, and integrated with the world beyond the classroom” [5]. There are number of benefits of using mobile devices and examples include: [5, 7]

1. There are no time constraints – “learning on the move”.
2. It enhances interaction between, and among, teacher and students.
3. Content is adaptable to meet individual needs.
4. It supports the just-in-time concept for learning.
5. It is a more student-centred approach to learning.
6. It helps to promote personalized learning.
7. Collaboration can be enhanced as a result of the synchronous and asynchronous modes of communication made possible by the device.

Besides the many benefits of mobile learning, there are also a number of challenges. The instructional settings and flexibility in the m-learning process require new pedagogical templates for the learning process. The whole process needs proper facilitation so that both students and teachers actually can do their tasks on the move. [6]

**Specifications of Mobile Phones for the Project**

The mobile phones used in our project have to meet a number of requirements: The student should be able to use the mobile phone for communication (voice, SMS and Internet access), for playing audio and video files and for running Java applications for (e.g. quizzes and book readers). A memory card option is necessary since it should be possible to “pre-load” most of the multimedia material on the phones. Finally, the cost of the phone should be within the reach of most users. The minimum specifications below where selected:

- 3G/MPRS
- Java
- SMS
- QVGA display, 320*240 pixels, display not smaller than 2 inches
- Ability to play MP3 audio and MPEG4 / 3GP video
- Memory card option, card size e.g. 4 GB Micro SD

**Learning material and interaction between the teachers and the students**

In the project, both Internet and mobile phone networks are used for the distribution of learning materials and for communication. The idea is to adopt a flexible solution, making use of the best infrastructure and ICT tools available in each individual student’s workplace. Course material is thus available on computers, via the Internet, but also on mobile phones, via mobile phone networks in such cases that computers are not available. In addition, the material is also made available through the distribution of memory cards. SMS communication between mobile phones and the computer based learning management system is handled through a gateway thus connecting the mobile phone users with the computer users.

The learning management system Moodle is used as a hub for learning material, assignments and other learning activities. Moodle quizzes are “mobilized” by converting them to Java applets, downloadable to mobile phones. The results from the quizzes are then sent to the teachers via SMS by the Java applets in the mobile phones. The application Moodletxt is used as a gateway between Moodle and the mobile phone networks to send and receive SMS.

**The introduction of the pilot group**

In January 2009, a pilot group of 18 students was introduced to the system during a two-day meeting. The majority of the students quickly learnt the operation of the phones, how to access the learning material and how to communicate.
During the introduction surveys, qualitative questionnaires and focus group discussions were conducted to get a view of the students’ attitudes to the project and the use of mobile phones in their studies. Some results from this material are summarised below.

All of the 18 students thought that the Moodle system and the mobile phones would increase their possibilities to be successful in their studies. Some of the reasons mentioned were:

- Course material is now “close to me” available on time as text, voice and media files.
- Communication is improved, and updated course information can be communicated.
- The Internet access possibility in the mobile phones makes it easier to find material.
- Continuous assessment is made possible, and networking with fellow students is improved.

Thirteen students answered the survey. Of these, twelve had more than three years’ experience of mobile phones. All of the students agreed or strongly agreed with the statement “Learning through mobile phones is feasible and productive”. Twelve of the thirteen students liked or “liked very much” to play the media files on the mobile phones. Twelve of thirteen thought that the use of SMS for quizzes and assignments was useful or very useful. Eleven students out of thirteen found the text material in the mobile phones easy or very easy to read.

Evaluation and possible scaling up of the pilot

During the second half of 2009, the pilot project will be evaluated and possible additional tests will be planned. If the pilot is successful, a suggestion for a nationwide programme and guidelines for mainstreaming the model will be prepared. As mentioned above, the main target group in the project is the “licensed teachers” in secondary schools in Tanzania, but the experiences from the pilot project can also be used in other teaching and learning contexts.

References


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