M-learning to empower the learner and to facilitate informal study groups

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Introduction

In Tanzania, the great number of primary school leavers has created a shortage of secondary school teachers with adequate training. However, in response to this challenge, 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 powerful tools 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].

The primary focus of this project is 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.

This paper will focus on the results of the project pilot which was initially presented at eLearning Africa 2009 [4] finalized and ultimately evaluated in December 2010.

Summary of the project

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

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

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 (e.g. quizzes and book readers). In addition, a memory card option is needed 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 were 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

The pilot project

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 how to operate the phones, how to access the learning material and how to communicate.

In December 2009, an evaluation of the pilot was carried out using a web-based survey and via feedback from a half day meeting with the students. In this feedback meeting, the students discussed their experience in groups and answered questions individually.

The feedback indicates that:

- The students had used the phones for Internet searches without having to find Internet cafes or other places with computers and Internet access each time they looked for information.

- Since all the learning material was downloaded to the memory cards of the phones, both as text and interpreted as voice, students had had easy access to all learning material. For example, they could listen to the texts in the course material while travelling on the bus (without Internet access).

- When comparing the text and voice interpretation of the material some of the students claimed that the phone screen was too small for extensive reading. However, when on the bus, for example, where the printed study guide is too big to handle, students found that the phone screen was nevertheless an attractive alternative. Students also reported that he voice interpretation worked even in a noisy environment, thanks to the earphones.

- The phones had been used for informal communication within the student group. They communicated by e-mail, made voice calls and sent SMS’s to fellow students about topics related to the courses and the learning material.

- However, neither the learning management system Moodle nor the mobile phones were used for communication between the students and the lecturers at OUT.

Results and Discussions

The project aims to “improve performance of secondary school teachers by providing training on pedagogy and subject specialized education”. As the project has only been running for a short time it has not yet been possible to measure the improvement in performance of the teachers using ICT applications like Moodle and mobile phones in their in-service education. Although it is not possible to draw any definite conclusions due to the small size of the test group, it would be interesting to compare the percentage of the students in the test group that did pass their exams in December with the whole group of students in the OUT programme.

One goal of the project was to “exploit the interactive potential of ICT in the provision of modern education theory and practice via distance education programmes”. The interactive potential of ICT was unfortunately not fully exploited. The lecturers at OUT were not active for several reasons:

• They were not compensated for the time required for participation in the project;
• The extra time involved in communicating with students was seen as an additional task involving more work and commitment.
• The project underestimated the complexity of introducing collaborative models in the academic culture of the target institutions.
These factors lead to minimal interaction between lecturers and student; the students were left to explore the learning possibilities of ICT by themselves. In addition and due to infrastructural technical shortcomings, the Moodle system was not used and its potential left uncharted. However, as often is the case with the introduction of new technologies in educational processes, adoption and acceptance on behalf of the stakeholders requires time. For the extended project to be successful, more effort has to be made in creating the conditions for the acceptance of the project and its tools at OUT.

Another goal of the project was to work with existing infrastructure and media, i.e. to “Develop models for communication and distribution of learning material for different technical environments (broadband, VSAT, mobile phones, CD/DVD, memory cards etc).” According to the students in the pilot project they had made good use of the media stored on the memory cards in the mobile phones. They also successfully accessed the Internet via local networks and were able to search for additional learning material. Using these tools, the students felt empowered as learners. Memory cards in mobile phones are obviously an attractive way of distributing learning material. As mentioned by the students, more material can be loaded on memory cards in the form of additional courses, test questions, encyclopaedias, and this can be done with several types of media.

As mentioned above, the students used the mobile phones for Internet access to search for information. This was in line with an additional goal to “exploit other possibilities of the new global world of information and communication and to support teachers to handle the challenges of using e-resources through knowledge sharing, networking and collaboration for improving teaching.” The easy access to Internet was much appreciated by the students, e.g. they did not have to go to the Internet café for their Internet searches.

Empowerment the learner and facilitation of informal study groups

In summary, the students found the fact that they could use the mobile phones in order to access course material, for communication and for Internet access very rewarding. “The material is in our hands”. In this sense, the pilot project can be seen as a success despite the fact that other project goals were not fully realized. Most importantly, the project management was not successful in fully establishing acceptance for the project model among the lecturers at OUT. However, increasing learner autonomy by supplying students with electronic access to learning material and information and encouraging them to form informal study groups is a realistic outcome even when structural support is limited.

Proposed scaling up of the pilot project

It is suggested that in the planned scaling up of the project more effort should be put into working with the lecturers at OUT in order to increase involvement with the project. Using students from the pilot project as “e-mentors” or “peer mentors” could also be an approach. Based on the experiences from the pilot project and from requests from the students in the pilot group, more material should also be included on the memory cards of the mobile phones. Suggested by the students at the evaluation meeting were for encyclopaedias, wordbooks, more quizzes/questions, previous exams and more courses.

Learner groups also discussed the need for a more organized way to set up study groups, for example, “older” students can be used as mentors”. In addition, teachers and educational colleges can be used as additional tutoring support. Further possibilities include using Yahoo-groups or mobile phone IM systems for collaborative communication.

References


4. Dr. Jabiri Kuwe Bakari and Muhammad Atif Ishaq, Open University of Tanzania, Mr. Cyprian Miyedu, Ministry of Education and Vocational Training, Tanzania; Bengt Nykvist and Dr. Mats Deutschmann, Mid Sweden University, “Enhancement of In-Service Teachers Training Programme through Mobile Phones in Tanzania”, e-Learning Africa 2009, May 2009, Dakar, Senegal, published in conference proceedings