

Chapter 98

Learning and Teaching With Mobile Devices: An Approach in Higher Secondary Education in Ghana

Margarete Grimus

Graz University of Technology, Austria

Martin Ebner

University of Technology, Austria

ABSTRACT

While many developing nations find Internet-based e-learning unsuitable for their needs mobile learning methods – specifically those involving the use of mobile-phones for both formal and informal learning – hold great promise for them (Grimus et al, 2013b). In this paper chances and challenges introduced by mobile devices to support improvement and transformation of education in a Senior High School in Ghana are examined. The field-study draws attention to the local situation, looking at infrastructure and teachers and students attitudes in using digital learning material. This paper presents results of a pilot project at a Senior High Technical School in Ghana, by addressing the issue how mobile devices can be integrated in learning and teaching. Based on our results we conclude that teachers and students hold great promise for using mobile devices for learning. Together they developed content based on the national curriculum, available for eReaders and mobile phones.

1. INTRODUCTION

While computer labs and desktop computers are scarce in schools in Ghana, mobile networks, mobile phones and, recently, smartphones have the potential for new approaches to learning and teaching. This can compensate for the lack of

infrastructure, and therewith, offer the chance to provide on- and off-line content for learning and knowledge creation, accessible with mobile devices. The general idea of the study was to explore how higher secondary education in Ghana can benefit from new developments in mobile technologies in combination with new didactic

DOI: 10.4018/978-1-4666-8789-9.ch098

cal approaches. Mobile devices are cheaper and more usable than, for instance, a desktop PC, in developing countries and can help gain access to learning materials. Mobile technologies provide opportunities for teaching and learning in ways that have not been possible before, and have the potential to initiate changes in teaching methodologies. Mobile phones have the potential to support education across the curriculum, apart from the communication function. In education the use of mobile phones is associated with portability, availability and educational usefulness.

Teachers and students explored how access to learning materials could be improved by using mobile phones and how new ways of teaching and learning could be implemented. The aim was to provide students with a possibility of accessing learning material with mobile phones whenever it is needed and to provide teachers with skills for developing content and tasks particular for local demands.

The project was designed on a small scale, based on the school environment of Keta Senior High Technical School in Ghana (KETASCO, <http://ketasco.com/>), to examine chances and challenges for integration of mobile devices (laptops, mobile phones and eReader).

2. FOCUS ON LITERATURE REVIEW

Low-cost and affordable, mobile phones in Africa are offering new perspectives for improvement in education and learning. There is growing concern about the use of computers and mobile devices to support learning, but the general state of pedagogical integration of ICTs in Ghana is low. (Yianda, 2010) Mobile technologies can play a particularly important role in the informal learning environment: they can be used for communication, collaboration, gathering and sharing of information. (Khaddage & Lattemann, 2013)

Mobile learning refers to use of mobile or wireless devices for the purpose of learning. (Park,

2011) In his publication at the conference on the 'digital future', Traxler pointed out that 'mobile devices will soon support every pedagogic option including the didactic and the discursive, the individual learning and the social'. (Traxler, 2010) He continues: 'Mobile devices affect many aspects of the process by which knowledge, ideas, images, information and, hence, learning material is produced, stored, distributed, delivered and consumed'. (Traxler, 2010, p.13) Instructional design suitable for desktop computers does not transfer well to mobile phones. (Batchelor, Botha, 2009).

The majority of mobile learning projects in Africa were initiated by individuals or organizations backed by private corporations or donor agencies. The problem of moving projects and pilots into educational provision mainstream is seen in the difficulty of finding secure and sustainable funding and support. Many pilots on m-learning activities have not materialized to on-going impact-generating programs, because most of the projects passed out after funding ended. (Grimus & Ebner, 2013a). This project runs without external funding, but has a strong focus on practicability in the field.

Digital literacy is important for a successful career after school. Digital literacy is defined as a set of skills, knowledge and attitudes required to access digital information effectively, efficiently, and ethically (Julien, 2014). In the 2012 GSMA report (conducted in Ghana, India, Morocco and Uganda) it is stated that 63% of youths believe that they could learn through even a basic mobile device; the benefit of mobile learning was considered particularly important and the highest quoted in Ghana (56%). This enthusiasm increased even more when youths were shown actual mobile data and video content. (GSMA, 2012)

Ghana's ICT4AD Policy (The Ghana ICT for Accelerated Development Policy) is targeted to 'transforming Ghana into an ICT-literate nation and promoting basic literacy and ICT literacy of the population at large through the implementation of special initiatives targeting both the formal and

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/learning-and-teaching-with-mobile-devices/139131

Related Content

Dynamic Motion Analysis of Gesture Interaction

Toshiya Nakaand Toru Ishida (2016). *Handbook of Research on Human-Computer Interfaces, Developments, and Applications* (pp. 23-51).

www.irma-international.org/chapter/dynamic-motion-analysis-of-gesture-interaction/158866

The Impact of Online Training on Facebook Privacy

Karen H. Smith, Francis A. Méndez Mediavillaand Garry L. White (2017). *Research Paradigms and Contemporary Perspectives on Human-Technology Interaction* (pp. 22-42).

www.irma-international.org/chapter/the-impact-of-online-training-on-facebook-privacy/176107

Data Acquisition Using NI LabVIEW for Test Automation

Pratik Santhosh, Daniel C. John, Pallavi Kodigandla, V. M. Uma Maheswariand S. Sujatha (2023). *Advances in Artificial and Human Intelligence in the Modern Era* (pp. 95-108).

www.irma-international.org/chapter/data-acquisition-using-ni-labview-for-test-automation/330400

Evaluating a Mobile and Online System for Apprentices' Learning Documentation in Vocational Education: Usability, Effectiveness and Satisfaction

Alberto A. P. Cattaneo, Elisa Mottaand Jean-Luc Gurtner (2016). *Human-Computer Interaction: Concepts, Methodologies, Tools, and Applications* (pp. 1133-1153).

www.irma-international.org/chapter/evaluating-a-mobile-and-online-system-for-apprentices-learning-documentation-in-vocational-education/139084

E-Learning Readiness and the Effects of Organizational Culture

Seyed Yaghoub Hosseini, Khodakaram Salimifardand Shahrbanoo Yadollahi (2018). *Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications* (pp. 649-663).

www.irma-international.org/chapter/e-learning-readiness-and-the-effects-of-organizational-culture/196697