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Tablets as primary educational computing devices. An impact analysis on the educational landscape in an Austrian university.

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Abstract

In this study, we analyze how tablet devices could be used as educational tools to support innovative educational practice in a university in Austria. Students and educators were issued tablet devices in 2011 across the full spectrum of programs. Surveys were used to assess the impact of the tablet devices' use on motivation, quality of work, collaboration, achievement, and other factors.

Keywords: mobile technologies, tablet, learning, university

1. Introduction

Mobile technologies, which provide the potential to be used away from a fixed location, can be used to enhance learning experiences in a number of different ways. Learners' data and information can be dynamically integrated over time and space, thereby creating new forms of collaborative and integrative learning for both students and educators.

In some countries, the use of m-learning for students located in remote places is taken as an advantage for communication and for media content development. A variety of devices are used and m-learning solutions are offered in companies and universities. Implementing mobile services in education as mobile learning modules is an innovative process at many levels of universities (Dykes and Knight, 2012). E-learning developers and course instructors must be aware of the changing user preferences, technological issues, and the new tools available in order to be able to determine how to benefit from them (Asabere and Enguah, 2007, Shafique et al. 2010).

2. Mobile devices based learning

The term 'mobile' refers to the possibility of taking place in multiple locations, across multiple times, and accessing content with equipment, such as smartphones or tablets (Keegan et al. 2006; Kurkela 2011). Mobile learning is learning that is accomplished with the use of small, portable computing devices. Mobile learning can be used to enhance the overall learning experience for students and teachers. 'Through mobile support, learners'

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throughput rates might be improved and the quality of the learning experience enhanced. Active learning might immerse where previously inactive studying took place'. The field of wireless technologies is developing exceedingly fast. Most of the developments contribute to the greater feasibility of mobile learning and to the richness of the courseware that can be developed for mobile learning. All of this has greatly facilitated the development of mobile learning and has contributed to the richness and complexity of courseware on mobile devices (Keegan et al. 2006; Pachler 2007, Sorensen 2009).

The European Commission has funded mobile learning projects with the aim to support vocational education and training using mobile devices for the delivery of learning content.

3. The Landscape of Austrian Higher Education

Institutions of higher education in Austria have experienced transformational processes in recent years, such as the transition, for example, to the Bologna system and the internationalization of studies being offered, in which the rankings are increasingly dominating the public perception of institutions of higher education. All of these factors have an impact on the overall educational system.

To be successful in a competitive environment, universities have to facilitate and promote academic excellence, which must be the deciding differentiating criterion for resource allocation within the universities. Qualification of and support for young academics is absolutely essential; young academics should be given the necessary freedom and opportunity for research (Hahn 2009).

The Lisbon Agenda has aspired to make Europe 'the world's leading knowledge-based economy by 2010'. The Barcelona European Council of 2002 and the European Council of 2005 relaunched the Lisbon strategy and are fostering universities as pivotal elements for reaching this objective. If a knowledge-based economy is characterized by the production, transmission, and dissemination of knowledge, universities are unique in all these processes (Perez 2009).

'A comparison of teaching at the university level shows, when compared internationally, that Austrian universities have an excellent faculty-student ratio when one factors in the other academic staff. With regard to full professors in Austria, the faculty-student ratio tends to be below average – with a wide range among the universities. Compared internationally, the percentage of PhD students in the overall student body is high and there are only small differences between the individual Austrian universities. This indicates that teaching at Austrian universities is research-oriented to a considerable extent.' (Steiner 2009).

4. Tablets in higher education

Although the use of computers including laptops is established in schools, the integration of tablet devices is still at the innovation stage. Considerable debates remain regarding the educational benefits of tablet devices for learners and teachers. The introduction of tablet devices throughout the mentioned university provides an opportunity for a research study on the initial impact of tablet devices on learners and teaching; and the social, technical, and infrastructure related problems arising. To analyze the impact of tablets on education, in 2011 a project was initiated by an Austrian university, which already has a strong commitment to information and communication technologies. The main focus was to use tablets in class and evaluate the impact on the educational performance.

The projects consist of a pilot project to be conducted at the university and follow up projects to be conducted. The pilot project was initiated in 2011 (duration 1 year); the first results are presented in this contribution. Students and educators were issued tablet devices in 2011 across the full spectrum of programs. Mainly students from business, economics, technical studies, and information technology contributed to the study. Main courses teaching with the tablets issued were (1) Introduction to Marketing, (2) Introduction to Economics, (3) Business Process Management, (4) Enterprise Information Systems, (5) Innovation Management, and (6) Geographic Information Systems.