

# Chapter 90

## Pedagogical Applications of Smartphone Integration in Teaching: Lecturers, Pre-Service Teachers and Pupils' Perspectives

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### ABSTRACT

*As the disparity between educational standards and reality outside educational institutions is increasing, alternative learning infrastructure are challenging traditional modes of teaching. This study was based on an experiment with middle school pupils, pre-service teachers and college lecturers. The aim of this study was to examine the extent to which the use of smartphones for teaching affects pupils' motivation. Moreover, it explored pre-service teachers' and lecturers' attitudes toward the implementation of smartphones in education: the types of usage they implement and suggest and whether they think that smartphones should be implemented in academia as well as in schools at all. The study was conducted by a qualitative and quantitative analysis. Relevant information was collected based on the questionnaires, correspondence, personal journals and interviews. There was a difference in the level of technical difficulties various groups face, the personal use each generation performs as well as their attitude toward smartphone implementation.*

### INTRODUCTION

Traditional schooling is very different from the wealth of interactions experienced outside of school with the use of cellular phone calls, text messaging and virtual communities. These two worlds come into conflict when children bring

mobile devices. Rather than focusing on the threat of mobile technologies to formal teaching, technological changes can be regarded as a positive challenge to schools, and a means of bringing teaching into the mobile technology age. Many schools find themselves unable to keep up with technology, while at the same time, there is an

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increasing use of mobile devices by pupils outside schools. This raises the opportunity that pupils will bring their own devices and that teachers, rather than opposing device usage by pupils, will benefit from this and rethink their teaching. In order for that to happen there is a need to consider including this topic in teacher education programs and make college instructors aware of rethinking their teaching through the modeling of preparing pre-service teachers [hereafter – “students”] to deal with those changes. The benefits of mobile learning are numerous and are expressed in different facets of education, including cooperative learning, contextual, constructivist and authentic learning. Mobile-based learning facilitates location-based learning, among other flexible, unconventional teaching strategies.

Educators’ attitudes toward wireless devices are mixed. There are teachers who report that using them increases the interest and involvement of pupils, as well as addressing different learning and teaching styles (Lamscheck-Nielsen & Jakobsen, 2009). However, wireless devices are perceived by some teachers as a threat to their authority and a distraction to the educational process. To change the perception of mobile devices as a threat, the authors propose to examine the contribution of such technology to teaching and learning. Harnessing the availability of mobile devices and mobile Internet technology for teaching and learning can empower learning anywhere and at any time as well as allow better access to knowledge. This in turn makes learning relevant and adjusted to the information-savvy society in which we live.

## **THEORETICAL BACKGROUND**

### **The 21<sup>st</sup> Century Skills in the School Context**

As a result of the accelerated technological development that transpires all around us in the digital age, we are required to adapt to frequent changes

in our environment. The majority of teaching staff in teacher education programs were not born into the digital-informational revolution, and so must undergo training themselves to prepare for digital proficiency. In their book “Born Digital”, Palfrey & Gasser (2008) maintain that, around the world, there are about one billion young people born into the digital knowledge environments. Using these environments is natural for them, whereas the learning environments and teaching methods at school have hardly changed. This increasing gap leads to a contradiction between the school reality and the reality in which children live outside the school.

For the increased incorporation of technologies, Daggett (2005) argues that a shift in focus is necessary, from teacher-centered instruction to pupil-centered learning in which teachers take a secondary position as director, guide and supporter of the learning process. According to Daggett, this will help pupils develop leadership skills, teamwork and other competences necessary and relevant to challenging issues in everyday life and the needs of the future workforce. Additional skills required are creativity and ingenuity, communication and collaboration, critical thinking and problem solving (Salpeter, 2003). The education system must therefore modify its teaching methods for the oncoming wave of digitally-proficient pupils, their skills, experiences and needs.

### **From Traditional to Innovative Pedagogy in the School Context**

Mobile learning can be implemented 24 hours a day, 7 days a week. It allows mobility at five levels: mobility in the physical space, technological mobility, mobility in the conceptual space, mobility in the social space and decentralized learning (Sharples et al., 2007). Smart mobile devices allow the collecting, organizing, storing and presenting of information. Squire & Klopfer (2007) indicate individuality as the most unique feature which distinguishes between handheld devices and other

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