

# THE IMPLICATIONS OF MOBILE TECHNOLOGIES IN INDIVIDUAL AND COLLABORATIVE LEARNING

## ABSTRACT

The main aim of this research is to study the impact of mobile technologies (mobile phones, PDAs, Pockets PC and Tablets PC) in the teaching and learning process. The project focuses on the impact of mobile technologies in individual and collaborative learning. Moreover, we intend to analyse if the mobile technologies will contribute to modify students' attitudes towards school and towards learning. The technologies we are interested in have a small screen dimension, comparatively to desktop, so the model of designing a Web page for these mobile devices will have to be adapted to their dimensions. We will conceive Web pages, exercises, activities adjusted to these limitations. We will also integrate audio and video through podcasts, to facilitate access to learning. For interaction and communication we will use the email, the service of instantaneous messages and the service of IP voice.

## KEYWORDS

Mobile devices, m-Learning, individual and collaborative learning

## 1. INTRODUCTION

With mobile technologies a new paradigm appear in education, "in the short space of five years, mobile learning (mlearning) has moved from being a theory, explored by academic and technology enthusiasts, into a real and valuable contribution to learning" [Stead, 2005]. Technologies as WiFi, WiMax, Bluetooth or 3,5G come to offer a universal public access and changing our way of communicating, working, living and learning. "Mobile learning" is both a new concept and one that has some familiar connotations. It is certainly concerned with learner mobility, in the sense that learners should be able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location" [Kusulska-Hulme & Traxler, 2005].

The fast increase in the use of mobiles devices presents new opportunities of learning, because "Mobile technologies have the potential to provide learners with new opportunities to connect and to create" [Downes, 2005], especially for pupils who live isolated or in remote places or with difficulties of learning. The flexibility of mLearning will make possible to learn almost anywhere, the students and teachers may choose the best place to work themselves. Much concerned has been expressed in recent times about the need of a unifying theoretical perspective in Human Computer Interaction. In this way, activity theory emerges as a potential framework for that. According to Engeström (2000) activity theory appears as a framework for analyzing and redesigning work. "The object of theory activity is to understand the unity of consciousness and activity. Activity theory incorporates strong notions of intentionality, history, mediation, collaboration and development in constructing consciousness" [Nardi, 1996, p: 7]. In other hand, according to activity theory, formation of operations from actions is ubiquitous" [Kuuti, 1996, p: 40]. Activity theory helps explain how social artifacts and social organization mediate social action [Bryant et al, 2005]. In this study some categories based on a model from cultural-historical activity theory [Engeström, Y., 1987] will be used to analyze data.

## 2. RESEARCH QUESTIONS

Two research questions were defined:

- Which will be the implications of mobile technologies in individual and collaborative learning?

- The mobile technologies will be able to contribute to change student's attitude to the curriculum matters and school?

### 3. METHODOLOGY

The study we intend to conduct is a quasi-experimental one [Borg & Gall, 1989; Schumacher & McMillan, 2001], with two groups, the experimental group and the control group. This study will occur during two terms in the Secondary School Carlos Amarante - Braga (Portugal).

The two groups (experimental and control) will be compared relatively to computer literacy, questionnaire of attitudes towards school and learning, and a knowledge test (pre-test). Then, both groups receive their treatment.

Group experimental will use mobile technologies to learn, write and work collaboratively. The control group will have traditional classes. At the end of the term they will do the post-test and the results achieved will be compared, as well as their attitudes towards school and learning.

During the second term, both groups will receive the same treatment with mobile technologies. At the end of the term they will do a knowledge test and fill in the questionnaire of attitude.

For this study the following instruments will be developed:

- a) Questionnaire to characterize students' computer literacy;
- b) Questionnaire of students' attitudes (towards school and learning);
- c) Knowledge test (pre-test and pos-test)
- d) Questionnaire of students' attitudes (towards school and learning) – evolution (after treatment).

### 4. CONCLUSION

The adoption of this new paradigm, mobile technologies, in classroom will contribute to rethink education. Teachers will have to follow the external changes and challenges, adapt the methods of learning to the globalization and the technologies. mLearning gives the individuals the opportunity to choose when and where they want to learn. This study constitutes an important contribution to the renewal of education.

### 5. REFERENCES

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