

Changes of Learning in Mobile Scenarios

Analysis and Comparison of Use and Browsing of a Virtual Campus in Mobile Scenarios

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Abstract: Mobility and working with mobile devices is now a well-established reality in our society. Students use the train, car or weekend away to work on their teaching materials. Likewise, technology allows for the generation of new content formats every day – letting us write text and convert it automatically into voice, web, PDF or DVD. This article proposes detailed monitoring of the browsing logs of a number of students using a mobile device (iPad) in order to better understand students' habits. The study is based on a comparison of browsing habits on PCs and mobile devices, and includes contextual observation fieldwork. Thus, the study combines both quantitative and qualitative data. Results obtained using this methodology will provide us with better insight of user navigational behaviour with respect to the used devices.

1 INTRODUCTION

The growth of mobile devices looks as if it will overtake personal computers. The official data show that we already have more mobile telephones than any other kind of technology, apart from televisions. This can be seen in the following Figure 1 published by the Instituto Nacional de Estadística (Spanish National Institute of Statistics, INE) as one of the main conclusions to its 2008 survey on ICT equipment and use (Encuesta sobre Equipamiento y Uso de Tecnologías de Información y Comunicación en los Hogares. Año 2008).

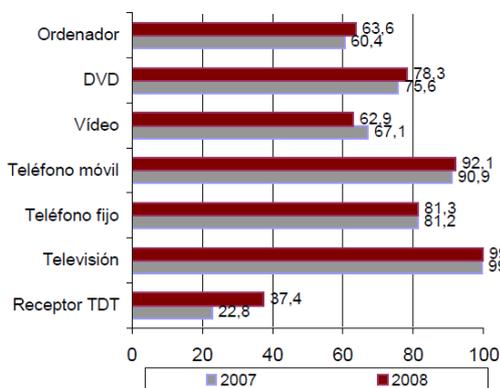


Figure 1: 2008 survey on ICT equipment and use in Spain.

On the other hand, students currently enrolling on e-learning courses are generally adults with work commitments. The Figure 2 below from the UOC's portal shows the profiles of its students.

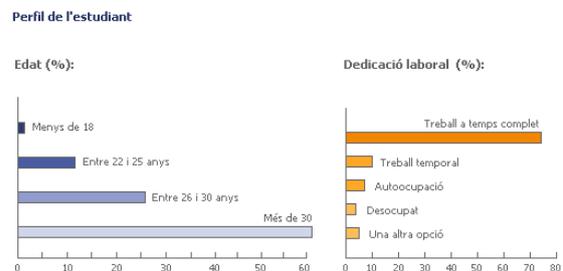


Fig 2: UOC's students profiles in 2010.

The data show that the number of people who need to make the most of mobile scenarios for learning is very high. This paper studies in detail these mobile scenarios, obtaining browsing data so as to improve and optimise learning. We can already see people on different forms of public transport using devices, generally for listening to music, reading or consulting documents. The proposal outlined below focuses on in-depth analysis of these scenarios and a pilot test – so as to aid and support students in making the most of this time for learning anytime and anywhere.

2 RESEARCH PROPOSAL AND AIMS

This research forms part of a larger project on mobility and learning at the Universitat Oberta de Catalunya (Open University of Catalonia, UOC). To date, work has been carried out to provide classrooms with new content formats for mobility and additional qualitative studies have been made into how these new content formats are used. For the first time, a pilot test group has been brought together in a virtual classroom and provided with iPads with an internet connection, allowing us to obtain data on their actual use.

Thus, our proposal is to analyse, describe and understand how people study in mobile scenarios. To do so, we will ask two kinds of questions; firstly, to find out about and describe the scenarios, and, secondly, to look at the technological solutions that could be used to optimise students' work. We first intend to fully describe the scenarios; i.e., what is happening and how it is happening. To do so, we will ask the following research questions:

- What are the new mobile scenarios for learning like?
- What tasks are undertaken by students in these scenarios?
- How do they differ from tasks undertaken on traditional PCs?

Once this is complete, we will also look to analyse the process by examining how interactions take place and assessing how this scenario develops. We also intend to ask a question about use of time that will allow us to ascertain the travel taking place in each scenario.

- What use of time does a student make on public transport?

Likewise, we also intend to ask questions relating to the evolution of the learning tasks carried out by students in these scenarios – assessing which one of reading, writing, searching for information or working with other classmates best adapts to each scenario. Then we would like to obtain answers to the following questions:

- Which tasks best adapt to each scenario?
- Which tasks do students tend to undertake in each scenario?

This last question will help us to guide how the technology, tools, content formats, voice, video, text, interaction, annotations, etc. have to evolve in

terms of improving each student's learning experience in each scenario, so we can answer the following question:

- How do we need to adapt the Virtual Campus to each scenario?

We intend to set two working objectives that encompass the above research questions:

1. Describe the new mobile scenarios, including both the scenario and the profile of the people and tasks involved.

This objective not only describes the scenarios, but also what happens therein. Thus, it is important that this objective responds to the first three questions. We want this objective to have clear data on what is happening, not in terms of a single snapshot, but as a film. Therefore, the analysis of the use of time is essential. This data will provide us with a browsing tree structure in terms of time and frequency.

2. Assess how the different tasks necessary in the learning process change in a mobile scenario.

This second objective ensures that the results of the project will not only involve a description, but also a pilot test of new tools, in order to see what changes are needed, and, thus, what is required of mobile learning tools in terms of adaptation to users and their environment.

3 OPERATING METHOD AND METHODOLOGY

3.1 Justification

The combination of qualitative analysis and real browsing has been seen in a number of cases to be useful for describing user-system interaction (Yuni, 2005). This proposal focuses our efforts on discovering the actual interaction with an iPad and comparing it to the interaction with a PC.

Thus, Table 1 below shows the series of tools to be used in this research, and the specific aim of each.

Table 1: Instruments of analysis.

INSTRUMENT	SOURCE	AIM
Analysis of PC logs	UOC logs	Ascertain the current standard browsing using a PC for subjects similar to the pilot test.
Analysis of iPad logs	UOC logs	Ascertain the browsing developed by pilot test users on their iPads, both using the application and the web.
Focus groups	Pilot students	Analyse and understand the quantitative results.

3.2 Research Phases

We envisage undertaking the research in two consecutive phases: the first phase focuses on preparing and carrying out the pilot test with iPads, which will allow us for extraction of data on the browsing record on both PCs and iPads. The second phase analyzes on the real student behaviour using focus groups, in order to better understand quantitative results obtained in the first phase.

PHASE 1: Browsing analysis

Three possible groups:

- PC students browsing
- iPad students browsing on PCs
- iPad students browsing on iPads

PHASE 2: Focus groups

- Why did changes take place?
- What new tools do students expect?

4 EXPECTED RESULTS

Once the information has been classified in terms of the initial objectives, we will be able to identify the weak points of the current system (which was not originally designed for iPads) and adapt the design of the technology or format to make working and learning in these scenarios easier. We expect to observe a different kind of browsing to that seen when using PCs, with simultaneous use of voice and text, and shorter browsing with less intense activity.

We also expect to identify the types of tasks that are usually seen in mobile scenarios: skim reading, short responses, etc.

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