Chapter 49

Critical Human Factors on Mobile Applications for Tourism and Entertainment

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ABSTRACT

The purpose of this chapter is to research some principles that can guide the design, development and marketing of mobile applications, with a particular focus on the tourism and entertainment application domains. This research also fills a gap concerning impact studies of mobile applications, since the majority of the literature available today is more focused on the design and development process and results. Besides describing a set of novel mobile applications, we aim at providing an overview on innovation processed used, and conducting several experiences, gathering results from questionnaires, surveys, log data and our own observations. Regarding the mobile tourism domain, we studied the impact of media visibility, the impact of novel interaction paradigms. Regarding the mobile entertainment applications, we focused on studying the impact brought that realism and graphics quality have on mobile games.

INTRODUCTION

Mobile phones are increasingly popular and the mobile service and mobile entertainment industry is a fast-growing sector, which is one out of many reasons why brands have become increasingly important. The mobile application developers and distributors need to offer applications which are easy to find and identify in the spectra of thousands of games on offer – Apple's iPhone AppStore is paradigmatic of this need, since developers crowd this space with myriads of innovative applications, making it difficult to assess both their market acceptance as well as actually selling them.

Mobile phones are nowadays used for a large number of quite different tasks – some have even used mobile phones as a way to control and play games on large public displays (Vajk et al., 2008).

The mission of this chapter is to research and establish new principles that can guide the design, development and marketing of novel mobile applications, in particular mobile applications that

exploit novel interaction techniques, like the accelerometer or multi-touch screens. We believe this can contribute to a growing body of knowledge regarding mobile computing and its applications, which are evolving rapidly. The chapter also fills a gap concerning impact studies of mobile applications, since the majority of literature available is more focused on the design and development processes (Stenbacka, 2007; Gilbertson et al., 2008). More research is needed in order to assess the impact of mobile computing and to gain insight into how the different technologies can have a positive impact in today's fast-paced society.

This research is also centered on the human factors that were considered critical, during the design and evaluation of different mobile applications for the popular iPhone (and one for the Nokia N95), having into account a study on how they were brought to, and accepted by, the market. In order to simplify and focus the research approach, we divided the analysis into two different application areas: *Tourism* and *Entertainment*.

The iPhone global applications market – as well as all devices, in general – is extremely crowded. Therefore, the innovation degree is very important in order to attract clients. This implies, among other issues, that products must be both useful and innovative. Although some applications are made using innovative approaches, like interweaving mobile games with real life situations (Bell, 2006), most applications are very simple and most of them don't really achieve a significant volume of sales, at least in Apple's iPhone AppStore. To assess the impact of the described mobile applications, we performed a study, during six months, which analyzed, for each of the applications (i) the **evolution** in terms of downloads, i.e. how they were accepted by the market, (ii) **contextual inquiries** performed to a group of users and (iii) **questionnaires** about the usability of the applications.

The remaining of this chapter is organized as follows: section "Background" describes related mobile applications studies, with respect to the entertainment and tourism application domains. This section also provides an overview on innovation processes that we followed during the design and development of our own mobile applications, in particular how to spark innovation during the process. Section "Mobile Applications for the Tourism Industry" is focused on iViews, a GPS-based mobile platform aimed at improving the tourist's experience. In this section, we studied the impact of media visibility in the marketing process of the application as well as the impact of the interaction technique applied. Section "Mobile Applications for the Entertainment Industry" focused on a racing game and studied the impact of realism and quality of the game's graphics, which we found to vary significantly according to the user's age. We also studied the impact of novel interaction paradigms in two different mobile applications, as well as brand recall rates, as a way to assess the appropriateness of mobile computing as an advertisement medium.

Finally, section "Conclusions and Future Work Directions" outlines some of the most important conclusions from our experiments and draws paths towards future research approaches that should be tackled in the future of mobile computing.

BACKGROUND

Mobile Applications' Studies: Entertainment and Tourism

The tourism sector is one of the world's most important economic sectors, and the increasing popularity of mobile devices presents an opportunity for developing innovative mobile tourism services. Stenbacka, B. (2007) studied and compared the impact of the brand in the success of a mobile game. By comparing and contrasting three different J2ME racing games, Stenbacka tried to answer these two research questions: (i) which components and factors affect success, when success is defined as high revenue per download

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