User Experience of Mobile Internet: Analysis and Recommendations

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ABSTRACT

Mobile access to the Internet with handheld devices has been technically possible for quite a while and consumers are aware of the services but not so ready to use them. A central reason for the low usage is that user experience of the mobile Internet is not yet sufficiently good. This paper analyses the mobile Internet from the end-user perspective, identifying factors and solutions that would make Internet usage on a mobile device an enjoyable experience. User experience can be improved by a better understanding of users and usage contexts, by developing mobile services that better serve the needs of mobile users, easing service discovery and by developing the infrastructure needed for the mobile Internet. This paper discusses all these aspects and gives development recommendations. Multidisciplinary and multicultural cooperation between the various actors in the field is needed to improve user experience.

Keywords: Mobile Internet, Mobile Services, User Experience

INTRODUCTION

Internet access on mobile devices not only changes the way the Internet is used but also some of its characteristics. In addition to enabling personal mobile devices to access existing Internet content, mobilizing the Internet enables totally new kinds of Internet content and services. Mobile Internet services can be made topical and personal by utilizing location and
other contextual data. Mobile users may play an important role in uploading topical content to web services. We have already seen the first steps in this direction. User experience of the mobile Internet is affected by device hardware and software, connection, gateway, services, and the seamless flow between these (Roto, 2006). All of these should work smoothly together to facilitate positive user experiences. There is still a lot to do to improve mobile Internet user experience as recent user acceptance studies from different parts of the world show that consumers are aware of mobile Internet services but not yet so ready to use them (Chu & Pan, 2008; Lopez-Nicolas et al., 2008; Lu et al., 2008).

A major change in Internet usage is predicted for developing countries, where mobile phones may provide the primary way to access the Internet (Ipsos Insight, 2006). The entire Internet infrastructure will be different there, and the infrastructure should be built to provide the best possible user experience with the given resources. Internet access may affect the development of the whole society.

This paper is based on two Mobile Internet User Experience (MIUX) workshops held in conjunction with Mobile HCI 2007 and 2008 conferences (Roto & Kaasinen, 2007; 2008). The international workshops gathered viewpoints and experiences from different cultures and stakeholders. Together with the participants we identified four aspects where mobile Internet user experience can be improved: 1) understanding the users and usages of the mobile Internet better; 2) improving services and service discovery; 3) improving device hardware and software, and 4) improving infrastructures such as connectivity, network proxies, pricing policies, guidelines and standards.

This paper analyzes issues that affect user experience of the mobile Internet. First, in the next section we define what is meant by user experience. Then we discuss who are potential mobile users, why they are potential users and where the usage may take place. Next we discuss individual mobile Internet services and suggest services that would be valued by mobile users. The following section discusses how people can be helped in discovering relevant services. Finally, infrastructure-level enablers for successful user experience are discussed in the last section.

**USER EXPERIENCE**

User experience is a term that describes a user’s feelings towards a specific technology, system, or object during and after interacting with it. Various aspects influence the feelings, such as the user’s expectations, the conditions in which the interaction takes place, and the system’s ability to serve the user’s current needs.

Taking the mobile Internet into use proceeds via the intention to use to the actual adoption. The Technology Acceptance Model for Mobile Services, TAMM (Kaasinen, 2005), states that the perceived value, perceived ease of use, and trust towards the mobile Internet all trigger the intention to use. If the adoption phase is also seen as being easy, people will start using the mobile Internet (Figure 1).

By the time the user starts to use the mobile Internet, s/he has certain expectations of it. If the expectations are low, user experience may be good even if the system is not perfect. People also evaluate the value they experienced with the mobile Internet, and that may overcome the possible difficulties and thereby make the user experience positive. So, although the mobile Internet system might not be perfect yet, it does not mean that the user experience has to be poor.

There are many elements that affect the user experience, and the user experience is often determined by the weakest link among these. According to Hassenzahl and Tractinsky (2006), the three main elements are the user’s internal state, the context of use, and the actual mobile Internet system. The system, in turn, consists of four main components in the case of the mobile Internet: the device, the software needed to use the Internet on the device, the network to transfer the packages, and finally the services available through the Internet (Figure...
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