

# Investigation of the Role of Mobile Personalisation at Large Sports Events

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## ABSTRACT

This article describes a field study investigating the impact on user experience of personalisation of content provided on a mobile device. The target population was Chinese spectators and the application was large sports events. A field-based experiment showed that provision of personalised content significantly enhanced the user experience for the spectator. Design implications are discussed, with general support for countermeasures designed to overcome recognised limitations of adaptive systems. The study also highlights the need for culturally sensitive methods for requirements capture, design, and data collection during experimentation.

## KEYWORDS

Cultural Characteristics, Large Sports Event (LSE), Personalisation, User Experience (UX), User Studies

## 1. INTRODUCTION

The emerging dominance of mobile personalisation has resulted in new design challenges related to the impact of usage contexts. There is also ongoing interest in designing for user experience (UX) within HCI (e.g. Roto et al., 2011; Law and Schaik, 2010), and recognition of the role that personalisation plays in increasing UX (e.g. Oulasvirta and Blom, 2008). The specific topic of investigation within this research is large sports events (LSEs). Spectators at LSEs are often overloaded with large amount of information (Sun and May, 2010). In addition, they can lack effective social interaction with fellow spectators at LSEs (Esbjornsson et al., 2006). Large sports events present a number of interesting design challenges. The foremost issue is that the UX at a sports event is primarily derived from the sporting event itself and therefore a mobile device must supplement this experience, rather than distract from it. User outcomes can be influenced by the interaction with a mobile device, but are actually generated by interaction with the wider environment within a stadium. There is a range of supplementary information sources and content available to spectators (e.g. screen-based video replays, information posters, broadcast announcements); personalisation on a mobile device must add value over and above these other sources, and physical constraints within a stadium (e.g. fixed seating) can limit mobility and social and information-based interactions.

The second challenge is that user outcomes need to be measured in more than functional terms, i.e. a broader UX rather than a usability perspective is needed. A third challenge is that it is necessary to understand what the specific personalisation cost/benefit trade-offs are for a spectator at sports events, and the implications for successful design of services. A final challenge is that the nationality and cultural background of spectators is often diverse, and services and the methods used to design those services must explicitly account for this.

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The main aim of this article is to study LSEs environments and assess the potential for personalised mobile content to enhance the UX for a spectator. Personalisation of content has been shown to provide a range of benefits to a consumer, including increasing their usability, enhancing social interaction, and producing a more engaging ‘user experience’ (Bonnet, 2001; Oulasvirta and Blom, 2008; Karpinskyj et al., 2014).

A secondary aim of this article is to make a methodological contribution related to the application of Western-derived user-centered design methods with Eastern participants. The user group within these studies was Chinese, and their cultural characteristics raised some interesting issues to do with their involvement within a design and evaluation process.

## **2. PREVIOUS WORK**

### **2.1. Personalisation of Services**

Kim (2002) defines personalisation as optimizing the user experience by providing content and services based upon the user’s interests, preferences, behaviour and context, targeting the goal of the user. This article focuses on content personalisation (Wu et al., 2003) which provides tailored information within a particular node within the human-device navigation space.

Various studies have already shown a number of positive psychological and somatic benefits resulting from personalisation. Norman (2004) suggests that personalisation allows users to act as designers by organizing and designing thoughts, memories, and images that they find useful or pleasing, thus creating a more engaging user experience. He suggests that users inherently want to personalise: ‘we are all designers’. Christos et al. (2005) go even further by suggesting that the majority of mobile users think of it as a declaratory part of their personality. Blom et al. (2003) describe how personalisation brings a sense of: ownership and identity; the desire to express personality in public forums; the availability of instant communication; and the personal appearance and feel of mobile applications. Despite of all these benefits, more recent research has identified that there are very few empirical studies that focus on the impact of personalisation on user experience, for example, user perception of the effectiveness of personalisation varies depending on the approach of the personalisation used (Martinez et al., 2009; Kabassi, 2010).

### **2.2. Spectatorship at Large Sports Events**

Nilsson et al. (2004) describe that spectatorship is an exciting experience with lots of information. However, spectators find it difficult to be at the right spot at the right time, to catch the most exciting sporting moments and to be fully aware of what is happening. Spectators cannot influence what or when information is transmitted to them during the events. While being mobile and away from available announcements, it is difficult for the spectator to access relevant information at the right time. Spectators have to rely on information available through word of mouth from other spectators.

Similarly, Sun et al. (2009) point out that spectators are overwhelmed with large amounts of information, but there is no support to filter the incoming data. Spectators are occupied not only with the sporting action during the competition but also with the other related media via newspapers, magazines, broadcasts, etc. Such mass media sources simultaneously reach a large number of people with updates on the action, but they are unable to support interactivity, and information on demand.

From the perspective of the social context at LSEs, Ludvigsen and Veerasawmy (2010) and Jacucci et al. (2006) state that spectators gather in groups to co-experience something exciting during LSEs. Rather than being passive participants, they are actively engaged in staging their experiences, including navigating and selecting places, settling, and creating multimedia records of the events. This is also demonstrated in the study by Peltonena et al. (2007) - that the spectators observed in their study did much more than just “watch”. All of them used their mobile camera phones extensively.

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