

# Trends in User Experience Research

Wolfgang Leister and Ingvar Tjøstheim and Till Halbach Røssvoll

Norsk Regnesentral, Oslo, Norway

Email: {wolfgang.leister, ingvar.tjostheim, till.halbach}@nr.no

## I. INTRODUCTION

Citizens use many ICT-based services, applications, and installations in various situations with different outcome. The experience a citizen gets from this use is an important factor. Will the user get the expected result, or will she or he be disappointed and tend to other offers? Thus, if the user does not get a satisfactory experience, solutions will be avoided, rendering large investments a failure, or leading to ideas never being deployed.

Users today can choose from a wide selection of solutions based on their experiences. These experiences are a combination of requirements for functionality, design, privacy, security, universal access, etc. Among the application areas where user experiences are essential, we focus on cultural mediation via ICT-based installations, as well as applications within healthcare and well-being for further analysis.

While there are guidelines for how to achieve a good experience, most of these are derived from empiric studies for certain application areas. Here, user surveys and qualitative studies are an important tool to gain more knowledge about user experience.

## II. FROM QoS TO QoE

The Quality of Experience (QoE) is a subjective measure of a user's experience with a service. While QoE measures subjective values, often established using user panels, the related Quality of Service (QoS) uses objective measures according to carefully defined metrics. Leister et al. [1] establish a relationship between QoS and QoE for video streaming content, so that QoE can be estimated by measuring certain QoS values. Quality assessment methods, such as SAMVIQ, MOS, and APDEX [see 1] are employed. Collecting such data in frequently used applications can cause problems regarding the user's privacy, which must be addressed in the implementation of a system.

Other assessment methods include user evaluation. Recently, the eye-tracking specialists Tobii and SMI launched a new wearable product for mobile eye-tracking in assessment processes. Eye-tracking has in some cases a clear advantage compared to surveys that rely on what a person recalls. With mobile glasses, eye-tracking of a person while moving is possible. From a methods point of view, valuable video-data can be collected together with and as a supplement to the subjective assessments. With this kind of data collection tool it is possible to link subjective and objective data.

## III. APPLICATION AREAS

### A. Cultural Mediation

3D-expositions in museums have been tried; however often extra equipment is needed with the effect that visitors experience a higher proximity to the artifact, instead of a closer one. On the other hand, studies of dissemination of cultural heritage using virtual and augmented reality technology conclude that these technologies contribute to flexible artifact research activities by visitors, since they have the opportunity to explore themselves [2].

Dourish [3] coined the term "embodied interaction". Research in this area had a considerable impact on how ICT systems are designed and used today. Embodied interaction emphasises that humans use their body, and understand interaction with their body. When we try to understand and investigate interaction in virtual reality, we build on insights from embodied interaction, enabling a closer relation between interaction with objects in the material world and in the virtual world.

Three-dimensional movies and the availability of gesture interaction for game consoles foster new ideas of how to interact with cultural objects in museums. Many objects are fragile and can thus only be shown behind vitrines, unreachable for interaction. New technologies allow for presentation of objects on stereoscopic screens glasses-free.

### B. Welfare Technology

Gesture interaction, movement-detection, and 3D-interaction technologies are also used in applications for welfare, e.g., for users with reduced abilities, patients with chronic diseases, and for training purposes. The experiences from interaction techniques for cultural mediation can be used in such application areas.

## REFERENCES

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