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Research Article

Heuristic Evaluation: Comparing Generic and Specific Usability Heuristics for Identification of Usability Problems in a Living Museum Mobile Guide App

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This paper reports on an empirical study that compares two sets of heuristics, Nielsen's heuristics and the SMART heuristics in the identification of usability problems in a mobile guide smartphone app for a living museum. Five experts used the severity rating scales to identify and determine the severity of the usability issues based on the two sets of usability heuristics. The study found that Nielsen's heuristics set is too general to detect usability problems in a mobile application compared to SMART heuristics which focuses on the smartphone application in the product development lifecycle instead of the generic Nielsen's heuristics which focuses on a wide range of interactive system. The study highlights the importance of utilizing domain specific usability heuristics in the evaluation process. This ensures that relevant usability issues were successfully identified which could then be given immediate attention to ensure optimal user experience.

1. Introduction

Cultural and heritage sites have a long history of adapting mobile technologies as visitor's guides. According to Tallon [1], mobile guide technology was first used at Stedelijk Museum in Amsterdam in 1952. Changes made throughout the years ranged from the digitization of the objects to the use of emerging technologies. The evolution of mobile guide technologies in cultural heritage sites has transformed the visitors' experiences at such venues. Kenteris and Gavalas & Economou [2] classified mobile guides used in museums into four different groups: (1) mobile guide applications, (2) web-to-mobile applications, (3) mobile phone navigational assistants, and (4) mobile web-based applications.

The use of smartphone technologies, particularly apps to replace other mobile guide technologies at cultural and heritage sites, could eliminate some issues faced by visitors. For example, it reduces the learning curve as visitors do not need to learn how to operate the technology and can focus on the content in the mobile guide. Jaěn, Mocholí, Esteve, and Bosch & Canós [3] highlighted this as an important criteria in designing the multimedia content browsers on mobile guides. In addition, the use of different types of mobile guides in cultural heritage sites also enables the visits to become more visitor-oriented and not fully controlled by curator, particularly through the personalization of information in accordance to visitors' need [4–6]. A recent study by Pallud [7] on the use of interactive technologies in a French museum to engage the audience and promote positive learning experience suggested that the ease of use and interactivity features of the technologies provided could influence the emotional process (authenticity and cognitive engagement), which in turn could influence learning. A prior research by Othman et al. [8] also suggested that visitors who use multimedia guide during their visit to cultural heritage site are significantly more engaged in the experience as compared to those who do not use any multimedia guides.

Usability and user experience (UX) have always been the predominant concerns of software products [9]. Helyar [10] highlights that mobile apps suffered from usability issues such as inept content and interface design. This resulted in the lack of user acceptance and the applications being rejected