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Building and Evaluating Museum Mobile Navigation System with Design Science Research Method: A Case of National Palace Museum

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ABSTRACT

Purpose

In this paper, a mobile navigation system of the National Palace Museum which is designed and built on the basis of seven design factors is presented. The purpose is to meet the visitors' needs and increase the visitors' intention and satisfaction toward using the museum mobile navigation system.

Design/methodology/approach

The framework and process of design science research (DSR) is used in this research to propose solution plans. According to actual environment, context, and literature, we first identify and discuss seven design factors affecting visitors' usability in museum mobile navigation systems. We then design and construct a museum mobile navigation application on Android on the basis of the seven factors, and evaluate the design to ensure this system can effectively solve the problems that the visitors encountered during the navigation process. The system structure is depicted in Fig. 1.

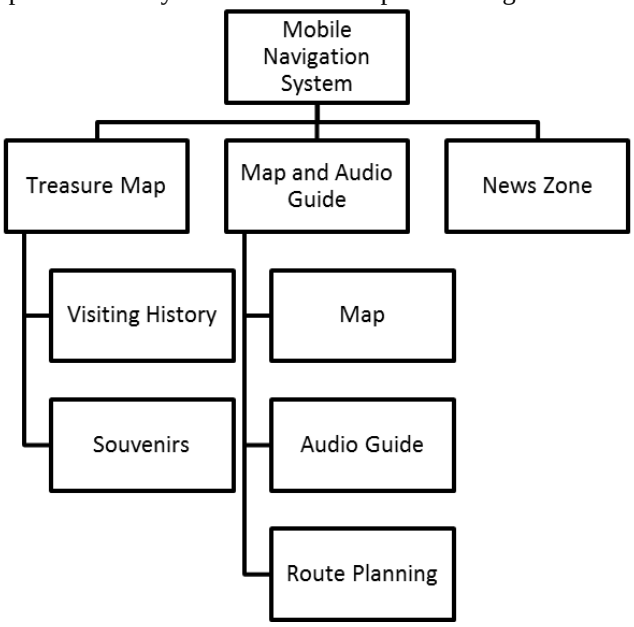

Fig. 1. System structure of the mobile navigation system

Conclusions

Visitors can use the navigation system on their smartphones to read the timely information of the artifacts and the exhibitions ubiquitously. They can plan the desired tour routes, and share the unique experience via social media. The designed system could meet the visitors' needs and increase the visitors' intention and satisfaction.

Research limitations/implications

We use laboratory experimental method to evaluate the effectiveness of this designed system. Other evaluation method could be used as well for future research, such as field experiment. Moreover, the gap we identified between users' perception of using the real system and their expected system requirements could serve as the reference point of future related research.

Practical implications

The building process of the mobile museum navigation system and the evaluation of the system utility could serve as the guidance for APP vendors to implement a mobile navigation system; or as a basis for museums to plan an exhibition.

Originality/value

With the prevalence of smartphone and the increasing use of mobile applications, the mobile navigation system has been widely used in museums. User satisfaction indicates information system success. However, there is seldom a navigation system built on the design factors affecting visitors' usability, rendering low user satisfaction. Our contribution is the system building

and evaluation processes, as well as the evidence that a mobile navigation system constructed by design science research method can increase the visitors' intention and satisfaction. Therefore, this research could provide guidance for museum to cooperate with APP vendors in designing a mobile navigation system that is able to improve visitors' experience in touring the museum.

Keywords: Mobile navigation, museum navigation, design science research, user satisfaction, mobile application