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Title	デザインガイドラインとゲーム要素を用いたモバイルアプリケーションに関する無形文化遺産コースの研究
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Abstract

A fundamental issue facing the succession and development of Intangible Cultural Heritage (ICH) is how to make young people interested in and willing to inherit ICH. Education is an effective way for this purpose. The widespread use of smartphones and mobile applications has brought about innovative changes in ICH education. Mobile applications present ICH in an engaging and interactive way, helping enhance younger generation's interest in ICH. Thus, a reasonable course should be built to guide students in designing ICH mobile applications and to support their ICH learning.

Researchers have extensively studied on ICH learning on mobile applications. However, these studies have not explicitly proposed designing ICH mobile applications through an ICH design course or using game elements to design ICH mobile applications to support students' ICH learning.

The main objective of this dissertation is building a design course for ICH with mobile application to enhance students' learning and interest in ICH. To achieve this objective, this dissertation has set three sub-research objectives to: 1) explore an ICH design guideline for design students; 2) evaluate gamification elements for ICH mobile application; 3) demonstrate design practice of ICH mobile applications by combining ICH design guideline and game elements.

Sub-research objective 1 is to explore an ICH design guideline for design students. Students were guided to collect ICH cultural data, analyze ICH cultural information, and design ICH products according to the ICH design guideline. Results demonstrate the effectiveness of the ICH design guideline in ICH design courses, and the efficiency of interdisciplinary teams utilizing digital technologies beyond ordinary single-discipline teams under the ICH design guideline.

Sub-research objective 2 is to explore game elements for ICH mobile application. Students' scores for game elements were analyzed using a mixed model for linear analysis. Then the mobile application prototypes were divided into three clusters

through hierarchical cluster analysis based on expert evaluations. Interaction positively affected ICH mobile applications, while achievement had a negative effect. The findings on ICH mobile application prototypes indicate that interaction and storytelling promote young people's enthusiasm in ICH.

Sub-research objective 3 is to demonstrate the design practice of the ICH mobile application in an ICH design course by combining the ICH design guideline and gamification design. Based on experts' evaluations, the author conducted hierarchical cluster analysis on the prototypes and obtained three clusters. The ICH design guideline was effective for ICH mobile application prototyping. Combination of the game elements of interaction and storytelling yielded positive outcomes for ICH mobile application prototypes.

The primary contribution of this study lies in establishing an ICH design guideline based on Bronfenbrenner's EST. This guideline provides learning guidance on ICH knowledge for students through the design process. The author evaluated game elements, designed ICH mobile application prototypes, and used interaction and storytelling to support students' interest in ICH. The ICH design course will offer practical insights and effective tools for ICH educators to guide students and support their design processes. The assessment technique of the ICH prototypes will provide a basis for designing a gamification product or service for ICH.

Keywords: Intangible cultural heritage, design course, mobile applications, design guideline, gamification