

Digital Tool for Knowledge Transfer of Intangible Cultural Heritage in the Category of Traditional Craftsmanship in Thailand

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ABSTRACT

The purpose of this study was to develop a tool for knowledge transfer of Intangible Cultural Heritage and Intellectual Property in the category of traditional craftsmanship (textile products and Metalwork) in Thailand. This proposed tool was designed with simplicity to ease its use, but with more efficiency when compared to other knowledge transfer tools. This study utilized mixed-method research design, quantitative research was used to collect data from 330 samples, Instrument used for data collection was questionnaires. Qualitative research was conducted in an aspect of in-depth interviews with 20 stakeholders in the creative cultural industries, and acceptance testing of ICHIP application platform. The study found that participants highly satisfied with the reliability of the information that displayed on the platform 93% and the appropriate basic function for the user and the beautiful display feathers are moderate 87%. Data revealed that the ICHIP application platform meets the requirements for ICH and IP information, the user interface was developed to provide a convenient and simple to use.

Keywords: knowledge transfer, intangible cultural heritage, traditional craftsmanship, creative cultural industry

INTRODUCTION

Currently, in the era of the creativity-based economy, industries are forced to utilize the knowledge creatively in order to build a competitive advantage. Business entrepreneurs need new knowledge such as scientific knowledge, new technology, new management model to develop innovation or to improve their organization's ability to compete with competitors, and to appropriately meet the ever-changing consumers' needs. New knowledge can lead to the creation of innovation and at the same time can assist in the creation of value from cultural assets for enterprises (Valentina, 2015) in the creative cultural industries or cultural entrepreneur (Zamana, 2015) which rely on the production of tangible or intangible artistic and creative outputs. Creative, intelligent, and knowledgeable exploitation of cultural assets in the production of goods and services (Moore, 2014; OECD, 2005) (both traditional and contemporary) (UNESCO, 2007). Can generate income and brings about sustainable wealth for the industries as well as the country.

Intangible cultural heritage (ICH) or traditional knowledge should be appropriately safeguarded because of its cultural value which (if utilize) has benefit to the country' economy. However, in the implementation of ICH into a new product or service it also involves intellectual property rights of the ICH which is an important issue to be discussed, especially when the ICHs were used inappropriately or without proper permissions. At

Article History: Received 28 March 2018 ♦ Revised 3 May 2018 ♦ Accepted 8 June 2018

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present, as information technology progresses rapidly, several digital platforms have been developed. These digital platforms provide digital tools for the safeguarding of intangible cultural heritage, such as an ICH database, a platform for collecting ICH data in order for protection (Bicskei et al., 2012; Ravi, 2012) and exploitation (Caffo, 2014; Laurentis, 2006), online platform for community engagement in ICH safeguarding (Cabral, 2011; Park, 2014) and Social network platform for the cultural industry to communicate within the supply chain (Gonzalez, 2015). Thailand's creative cultural industry is one of the major industries that create economic well-being for the country. Thai government pays high attentions to the industry as it has been realized that the country is richly endowed with many intangible cultural assets, soft assets which can be developed into creative and innovative products and services, Despite, through review of literature, it has shown that Thai entrepreneurs have been inappropriately utilizing cultural assets in the process of products and services development (Kesmanee, 2012; Sujachaya, 2007). Additionally, intellectual property management process of the cultural assets among the cultural industry is rather unclear, especially, in the management of the stakeholders' rights. There are also many problems, for example, the problem of violation of the rights of the assets' owners by the businesses, the inappropriately focus on creating new database for the ICH registration rather than sufficiently creating awareness among practitioners and the development of practical education about intellectual property (IP) rights management for the cultural creative industry by the relevant agencies (Anuntavoranich, 2012).

Social Network platform is currently a popular media through the high availability of mobile devices (Chen, 2010). This, therefore, suggests that the platform to be developed should be designed as a mobile application (Ismail, 2015). Because mobile approach allows delivering learning in place and time that was out of reach before. (Bruno Z. et al, 2006) The nature of mobile devices, with their small screens and poor input capabilities leads to the assumption that they can not replace the standard desktop computers or laptops. But the same properties can make them efficient in learning domain, if certain constraints are kept: Short, not more than 5-10 minutes long modules. Simple, funny and added value functionality. And Area/Domain specific content, delivered just in time/place (Anna, 2003).

RESEARCH METHOD

This study utilized mixed-method research; this study was conducted in an aspect of in-depth interviews with 20 stakeholders in the creative cultural industries (12 delegates from government agencies and 8 entrepreneurs), Delegates from government agencies were selected in according to the organizations' mission statement which indicates its roles which related to the cultural creative industry. The selected entrepreneurs were those who produces or sales in textile products and Metalwork. Qualitative information was gathered by ways of open-ended interviews, document analysis, and direct observation. Direct observation was conducted during visits to some of the participants' premises by their permissions. In-depth interviews with 12 purposefully selected participants who were deemed to be experts suitable to the purpose of this study were conducted each interview session lasted about one to one and a half hour. Questions in the in-depth interview encompassed five questions as followed;

- The importance of ICH, IP to the creative cultural industry.
- Processes, methods or tools to be used in the dissemination of ICH and IP information.
- Requirements effecting the transfer of the ICH and IP information to the industry.
- Key obstacles and challenges concerning the transfer of ICH and IP information.
- Innovation process model or new technology tool which deem appropriate to the transfer of the ICH and IP knowledge.

Quantitative research was consisted of two sets of the sample from Bangkok and suburban areas were used in this study. The first set (n=100) was the entrepreneurs in the creative cultural industries, and the second set (n=230) was samples selected from the general population. The sample size of the first set was calculated by applying Taro Yamane sample size formulation. The entrepreneurs selected were those who registered with the Ministry of Culture in 2015 (N) with the population of 2,280. 96 samples or about 100 samples were randomly selected, Confidence level was 95, tolerances ± 10 . And, the second set was recruited by means of convenience random sampling.

Table 1. Requirement of digital Application scores of the experimental group

No.	Item	\bar{X}	SD
1	Usability on various devices	4.12	1.011
2	Design for ease of use	4.92	0.721
3	Functions proper	4.15	1.029
4	Quick response	4.44	0.934
5	Beautiful interface	4.47	0.870
6	Accurate and reliable data	4.51	1.000
7	Understandable and apply able data	4.49	0.980
8	Examples and illustrations	4.39	0.920
9	More information searching capability	4.20	1.100
10	Direct contact with owner /expert	3.59	1.410
11	Users data's security	4.52	0.920

RESEARCH RESULTS

Collected Requirements

The researcher collected opinions about the required information from the stakeholders in the industry (Qualitative research) and the results are displayed as followed.

- Completeness and reliability of ICH data are vital.
- A fast, accurate, and direct information processing system is a must.
- Database security when providing entrepreneur and people access the database.
- Programs should be usable on various devices and have proper functions.
- Interface design should be easy to use and beautiful.
- Data Display should have examples and illustrations.
- The system is should have a quick response.
- The date should be accurate and reliable but understandable and applicable.
- The system should have information searching capability.
- Software or program should be flexible to many types of devices especially those that have multiple functions and are easy to handle.
- Easy to connect to the Internet or network.
- Transfer of ICH and IP knowledge should be delivered via digital media.

The researcher collects user requirements and essential features of the digital technology platform to transfer knowledge as follows. Usability on various devices, Design for ease of use, Functions proper, quick response, Beautiful interface, Accurate and reliable data, Understandable and apply able data, Examples and illustrations, more information searching capability, direct contact with owner /expert and Users data's security. The result of collected user requirements and essential features of the digital technology platform to transfer knowledge show in **Table 1**. Result highest in Design for ease of use (4.92), Users data's security was second (4.52), and lowest in direct contact with owner /expert (3.59).

Another important requirement in the platform development is the users' device in Thailand's Creative Cultural Industries. The graph in **Figure 1** display devices the users'. According to the graph, the largest proportion of the users' device is tablets which accounted for 35.15% of the total number. Second, a smart phone which contributed another 32.73%. This was followed by Personal Computer (PC) at 14.55%. 13.33% in Multimedia, and finally, 4.24% is a laptop computer. The data display that, on average, users prefer in mobile devices' as the platform to be utilized in the connection with the system.

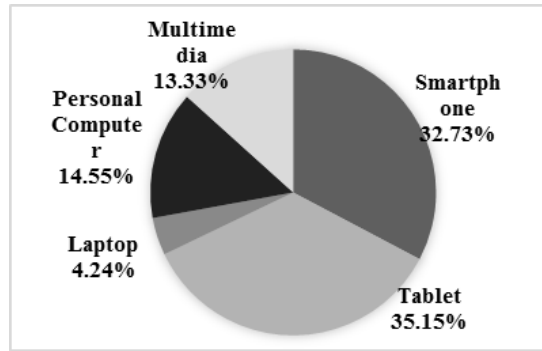


Figure 1. The device users to contact with platform in Thailand's Creative cultural industries

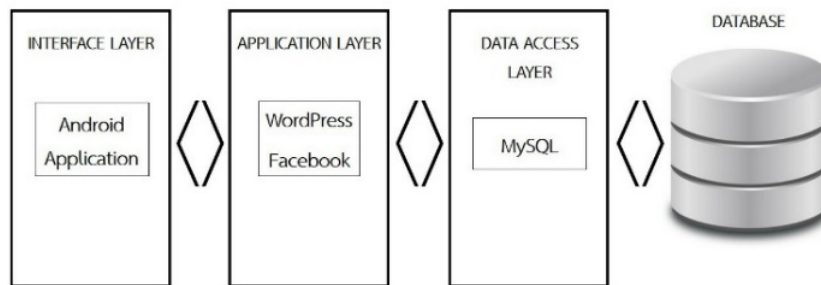


Figure 2. The ICHIP Software structure

Developing Application Platform

In order to develop a digital platform which can respond correctly to the user. This study conducted process which consisted of five steps, as followed:

1. Develop structure system of The ICHIP application platform that consisting of 3-layer architecture, as show in **Figure 2**.
 - 1.1 The Data Access layer, this layer using MySQL which is a Software to Help Manage Database. In this layer has the ability to create a database design and create data tables, that suitable for function and can be linked data tables. The system can use the property to add or delete information. It was essential to use WordPress for connecting database via Data Access Layer.
 - 1.2 The application layer, this layer develop by WordPress, that is a free and open-source software (content management system: CMS) based on PHP and MySQL. It was able to connect with Database and retrieved display on JSON (JavaScript Object Notation) form.
 - 1.3 The interface layer, this layered design and develop mobile applications with Android Studio, which is IDE (Integrated development environment). The application was developed with the JAVA language to make it easy for users.
 - 1.4 The authentication between database and user interfaces, this part develop to using Facebook SDK for PHP, that is security tools for user login to use ICHIP Database and It is comfort for user application. It was able to sync user data from Facebook to the ICHIP database.
2. For data needed to analysis and process the database. Integrated information related to the intangible cultural heritage based on traditional craftsmanship and intellectual property. Are fetched from stored database of relevant agencies such as the Department of Culture, Intellectual Property Department, Community Development Department, WIPO, UNESCO, etc.
3. The information management connected to the database via categorical sequence. To make it easier to run, it will be divided into several categories. To be able to link it properly with the user, the sequence is designed, as show in **Figure 3**.

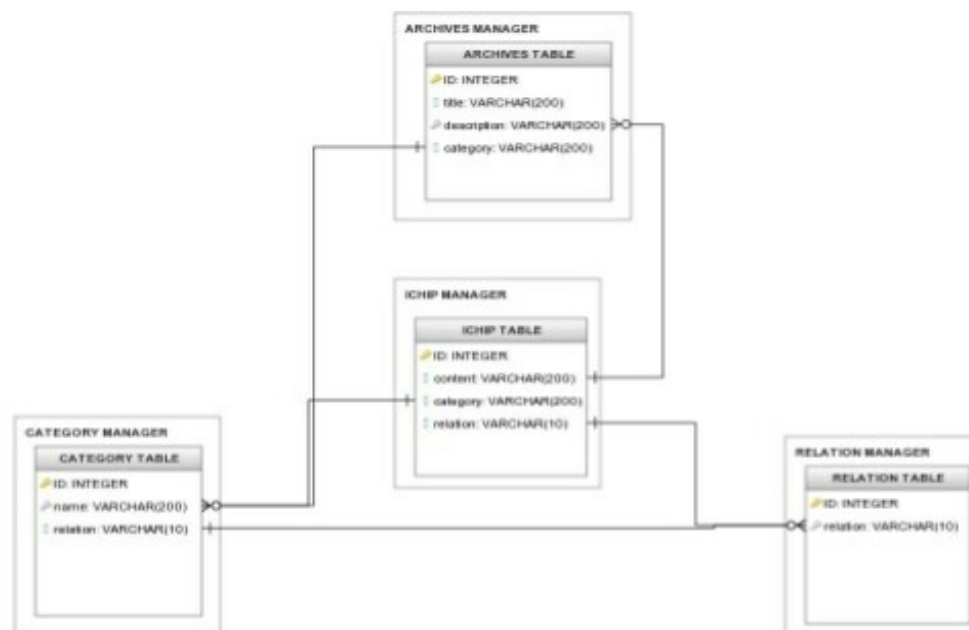


Figure 3. Information connected process



Figure 4. Screenshot of ICHIP Application

4. To connect to the ICHIP Application a server has been installed. It connected to the platform by using PHP language, when the connection is established users can access the app functions, and retrieve information from a database developed which will be displayed on the digital unisex given.
5. ICHIP Application then evaluates by the samples to determine the issues of use and limitations of use. The test results will be used to improve ICHIP Application in terms of its efficiency and with a performance for users.

ICHIP Application

ICHIP Application is a digital platform for transfer knowledge. It has a simple user interface and convenient to use. It developed which will be displayed on the digital given for easy to access. The user can download and install ICHIP application form Google play and App store. ICHIP consists of four main components: 1) Main page that store users' information by linking information from a user's Facebook account, 2) Knowledge Transfer page which provides information about the intangible cultural heritage-based works. This page also contains information about traditional crafts and intellectual property relevant to products and services development in the creative cultural industries, 3) Information page about the commercial exploitation of the intangible cultural heritage knowledge in the category of traditional craftsmanship with functions such as the analysis and synthesis of information. This page was designed to make users aware of the rights and issues of intellectual property rights arisen from sample cases of new products and services created with the application of intangible cultural heritage knowledge in the category of traditional craftsmanship, and 4) Links page to websites relate to intangible cultural heritage, intellectual property rights, cultural products and services and cultural products and services communities in Thailand, as shown in **Figure 4**.

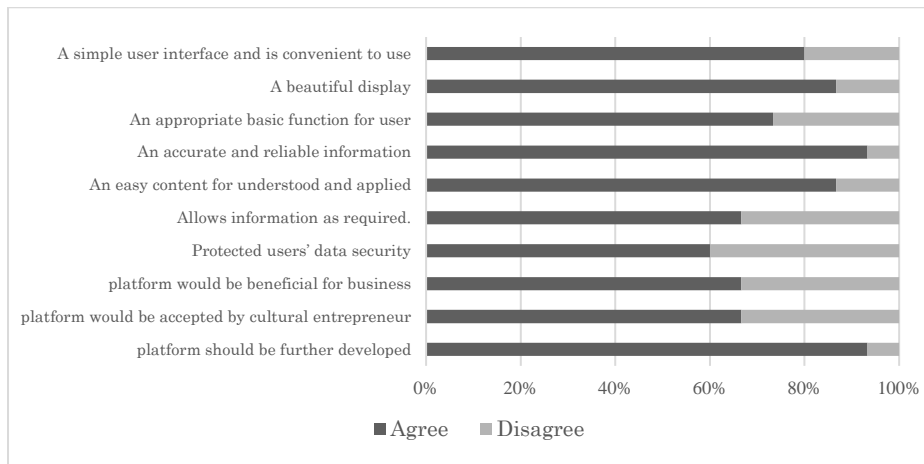


Figure 5. The result of acceptance testing of ICHIP application platform

Testing of Users' Acceptance of ICHIP Application Platform

To test the users' acceptance of the proposed ICHIP application platform, This research use TAM model (Davis, Bagozzi, & Warshaw, 1989) for user acceptance testing of the ICHIP application with 20 participants who are a stakeholder of the Thailand's creative cultural industry, and is not same participants in the data requirement sample group. **Figure 5** displayed result from the acceptance testing of ICHIP application platform. According to the figure, the participants highly satisfied with the reliability of the information that displayed on the platform (93%), however, the platform should be updated and added some functionality to accommodate future applications (93%), User's data security protection is the lowest (60%), and the appropriate basic function for user and the beautiful display feathers are moderate (87%). Data revealed that the ICHIP application platform meets the requirements for IP and ICH information, the user interface was developed to provide a convenient and simple to use, however, participants are also concerned about the security of users' data because the application platform was easy to access, which rancher possibility for information to leak.

CONCLUSION

This study presented the mobile-based application for Intangible cultural heritage and IP knowledge transfer for Thailand's cultural industries. It is designed to promote efficiency in the process of knowledge transfer and to find a way to safeguard and utilize traditional knowledge commercial. Knowledge transferring of Intangible cultural heritage and IP can increase the performance of collaboration of various interest groups including Traditional Knowledge bearers, community, government, and the public. ICHIP databases of different agencies relate the intangible cultural heritage and intellectual property were integrated for use. It will process and present easy information to understand and simple to utilized in the cultural industry. ICHIP using modern information which is easier to access will be a digital tool for educating and improve understanding of the community, groups, and individuals. Finally, the expected outcome of this tool is its application in the creation, protection, and exploitation of the intellectual property right for the production of cultural goods or services. However, the researcher has conducted a function analysis on the basis of ontology. These analyses are valuable in helping to protect the intangible cultural heritage and help make it better. With limited funds and time to develop this study understand that there is further need to integrate data and develop digital tool specific traditional craftsmanship. And future study, should be conducted in case of protecting the intangible cultural heritage right in the cultural industries used effectively and appropriately further information tools should be developed as follows: 1) integration and development system to processing information about the intangible cultural heritage in all categories, and 2) developing a digital platform in multi languages.

ACKNOWLEDGEMENTS

This research is supported by 90th Anniversary of Chulalongkorn University, Rachadapisek Somport Fund.

Disclosure statement

No potential conflict of interest was reported by the authors.

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