

Design and Research of Beijing Eight Imperial Handicrafts Popular Science APP Based on CUBI Model

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Abstract

This topic is aimed at the digital communication and science popularization of Beijing Eight Imperial Handicrafts, aiming to improve the public awareness of Beijing Eight Imperial Handicrafts, with the help of digital means to research and innovate the communication path of Beijing Eight Imperial Handicrafts, combined with CUBI user experience model to study the design of the APP of Beijing Eight Imperial Handicrafts, in order to promote Beijing Eight Imperial Handicrafts and Beijing traditional handicraft culture. And to provide a reference path for the digital transmission and inheritance of other intangible cultural heritage.

Keywords: Beijing Eight Imperial Handicrafts, CUBI user experience model, APP design

1. Introduction

1.1 Development Status of Beijing Eight Imperial Handicrafts

As the capital of China, Beijing has the strategic positioning of “four centers”, and the construction and development of traditional culture will also be one of the important ways to construct “cultural center”, which includes the Beijing-made handicrafts since the formation of the Yuan Dynasty. After combing and refining, “Beijing Eight Imperial Handicrafts” representing the palace handicrafts of Beijing has been formed. Namely cloisonne, flower silk inlay, gold silk inlay, Beijing embroidery, jade carving, ivory carving, carved lacquer, palace carpet skills. In recent years, as the country attaches great importance to the protection of

intangible cultural heritage, Beijing Eight Imperial Handicrafts have been included in the List of National Intangible Cultural Heritage. However, due to the inheritance method of apprenticeship training, Beijing Eight Imperial Handicrafts are faced with problems such as limited resources, small number of apprentices, small scale of inheritance and low efficiency of inheritance. Therefore, Beijing Eight Imperial Handicrafts are faced with the dilemma of communication and inheritance. At the same time, the inheritance of traditional handicrafts is more dependent on the transmission of its culture. At present, because the means of transmission of Beijing Eight Imperial Handicrafts mostly rely on traditional media, the audience of Beijing Eight Imperial Handicrafts is small, and the spread area is

narrow. Therefore, Beijing Eight Imperial Handicrafts are faced with the dilemma of inheritance and transmission.

1.2 The Application of Digital Products in the Dissemination of Intangible Cultural Heritage

In recent years, with the development and upgrading of digital media, digital means have played an important role in the dissemination of intangible cultural heritage, that is, through the combination of digital means and intangible cultural heritage, intangible cultural heritage has emerged a new form of expression, so as to achieve the purpose of the dissemination and inheritance of intangible cultural heritage. For example, the APP “Folding Fan” promotes the spread of folding fan culture by allowing users to experience the way of making folding fans through the gamified interactive interface. (Tianyu Yin, 2020). In addition, the APP “mortise and tenon” makes the deep and complex traditional Chinese architectural structures easy to understand and spreads the knowledge of ancient culture. For the first time, the unpopular Chinese architectural structures have become a hot spot for people to learn and have topped the recommended list in the APP STORE for several times, promoting the spread of traditional Chinese architectural aesthetics. Another example is the APP “Kunqu Opera Suitcase”, which mainly displays the suitcase, dressing art, role play and characteristics of Kunqu opera to the audience through the interactive process and visual elements, so as to let the audience understand Kunqu opera and realize the importance and artistic characteristics of Kunqu opera. The above digital products of intangible cultural heritage all spread the culture and connotation of the intangible cultural heritage to the public, and pass the humanistic value of the intangible cultural heritage to people through modern digital media.

2. Methods

2.1 The Concept of User Experience and CUBI Model

User experience was first proposed by psychologist Donald Norman. Today, designers define user experience as: people’s cognitive experience and feedback on the products, services and systems they are going to use or expect to use. (Design magazine editorial department, 2016). This definition indicates that user experience is generated in the process of users using products, including users’

psychological perception level, sensory experience level and the final result brought to users by experience, which is reflected in users’ emotional and physiological reactions after use. (ISO 9241-210, 2009).

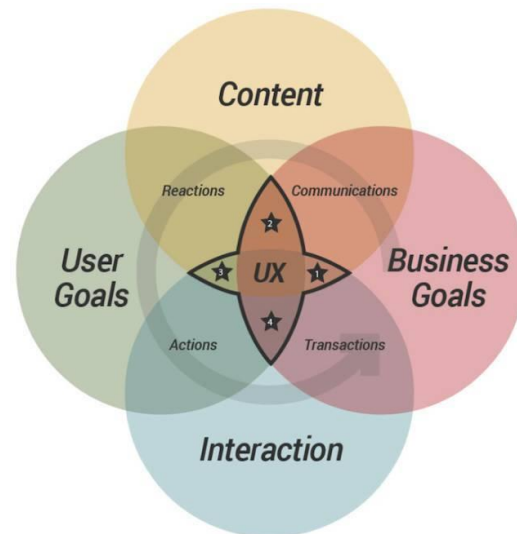


Figure 1. CUBI Model

As one of the many user experience models, CUBI model is a more practical user experience model proposed by Corey Stem after summarizing and sorting out other models. The main components of CUBI user experience model include Business Goals, User Goals, Content and Interaction constitute four components, and the four parts form a mutual transformation relationship, achieve an action cycle, and finally obtain four effective experience factors: Branding experience, comprehensive experience, usefulness experience and usability experience, as shown in Figure 1. (Corey Stem, 2014).

2.2 Application of CUBI Model in Beijing Eight Imperial Handicrafts Popular Science APP Design

2.2.1 Advantages of the Integration of CUBI Model and Beijing Eight Imperial Handicrafts Popular Science APP Design

At present, most of the intangible cultural heritage digital products are spread to users in the form of gamification, and most of the contents are produced by professionals, which leads to the slow update of the products and eventually the situation of being abandoned after use. At the same time, in the process of digital product design, there will be a phenomenon of formalization, only relying on the digital form to create a “superficial

prosperity” scene, but neglecting the cultural essence of the intangible cultural heritage, and eventually forming a phenomenon of form over content. Finally, at present, the audience of the APP related to learning and popularizing science of intangible cultural heritage has a low definition, and its distribution mode is relatively simple, which makes it difficult to form a good user experience, resulting in low user stickiness.

Through in-depth research on the problems existing in the contemporary dissemination and inheritance development of Beijing Eight Imperial Handicrafts, this topic explores how to use digital means to promote the popularization and dissemination of Beijing Eight Imperial Handicrafts culture, improve the public’s awareness of Beijing Eight Imperial Handicrafts, and then promote the popularization and inheritance of Beijing Eight Imperial Handicrafts, as well as the dissemination and development of Beijing’s traditional handicrafts. In addition, this topic selects the CUBI user experience model to provide efficient and useful research methods for the design of the digital popular science products of Beijing Eight Imperial Handicrafts to ensure that the products meet the needs of users at different levels and provide good user experience. At the same time, it can be used as a theoretical supplement for the traditional handicraft in the contemporary digital development and user experience of its digital products.

2.2.2 The Application Path of Cubi Model in the Design of Beijing Eight Imperial Handicrafts Popular Science App

This subject studies the feasibility of digital communication through digital popular science products with the help of CUBI model, and analyzes its design principles and methods.

First of all, the positioning fits in with the Business Goals of digital science popularization and communication of Beijing Eight Imperial Handicrafts. The status quo of skill inheritance and cultural communication of Beijing Eight Imperial Handicrafts is investigated and analyzed, and the cultural characteristics of different craft categories are summarized and sorted out. By “re-mining” the core values and knowledge of Beijing Eight Imperial Handicrafts, the functional structure of the digital science popularization products of Beijing Eight Imperial Handicrafts is clearly positioned. The Business Goals of this APP are to popularize the

culture and inheritance skills of Beijing Eight Imperial Handicrafts through the digital science popularization APP, and enable users to learn from it, realize and spread its cultural connotation, and integrate cultural elements and values into it.

Secondly, we should build User Goals. Through qualitative and quantitative research and analysis, user roles such as inheritors, research learners or practitioners, and general audiences are divided into different priority levels. According to the characteristics of each user role, user role models and storyboards are constructed to deeply explore user needs and preferences. Finally, hierarchical user role models are used to clarify product content structure. The User Goals of this APP are to carry out functional development based on the needs of different users, so as to realize the utility of popular science and learning for users, and realize the public’s cognitive demand for intangible cultural heritage through the recreation of culture on mobile terminals. (Zhang Ting & Peng Li, 2020).

Finally, it is a study on Content and Interaction design of Beijing Eight Imperial Handicrafts Popular Science APP. The interface design output of Beijing Eight Imperial Handicrafts popular science APP is carried out by clarifying the functional architecture, content positioning and interaction design specifications of this product.

3. Results

3.1 User Role Model of Beijing Eight Imperial Handicrafts Digital Science App

Before designing the functional framework of the APP, it is necessary to divide the audience of Beijing Eight Imperial Handicrafts learning popular science, that is, the entry-level users who know nothing about Beijing Eight Imperial Handicrafts, the general users who are interested in Beijing Eight Imperial Handicrafts and traditional handicrafts, and the senior users who have a lot of research on Beijing Eight Imperial Handicrafts. Users of different levels have different pain points and needs. Therefore, we need to make differentiated design of the product according to their needs.

First of all, research and analysis for entry users. For users who are not familiar with Beijing traditional handicrafts or Beijing Eight Imperial Handicrafts, their pain point is that there is no professional platform that can integrate relevant

information. In addition, they also need appropriate forms to attract their attention and learning, which can not only provide professional knowledge popularization, but also need interesting and intuitive forms. Therefore, science popularization and publicity are more important for these users. Through the online interesting and educational forms and contents, they can gradually have a deeper understanding of Beijing Eight Imperial Handicrafts, and gradually become general users.

Secondly, the research and analysis for the general users. For the users who have a certain understanding and familiarity with Beijing Eight Imperial Handicrafts, their pain point is that they do not have a lot of energy to learn and in-depth study related knowledge and skills of Beijing Eight Imperial Handicrafts. They need an online platform to integrate professional content and a convenient and professional platform to study and research. For such users, they pay more attention to the push of professional information and skills learning content. Through the integration of relevant professional information and learning materials, they can obtain learning materials more conveniently, communicate and share with their peers, and even achieve the effect of connecting online and offline learning.

Finally, it is the research and analysis for senior users. For such experienced users who have studied Beijing Eight Imperial Handicrafts, they pay more attention to the professionalism, accuracy and comprehensiveness of the product content. Therefore, for such users, more professional data integration is needed, such as literature research, real-time policies, academic forums and other data, so that such users can obtain professional academic data through this APP, so as to conduct academic research.

3.2 Functional Design Strategy of Beijing Eight Imperial Handicrafts Digital Science APP

In the functional design strategy of the Eight Wonders popular science APP, the design will focus on the needs of users at different levels and the cultural characteristics of Beijing Eight Imperial Handicrafts from the aspects of digital science popularization, digital learning, digital inheritance and so on.

In the digital popularization strategy, based on the digital record of the history, inheritors and works of Beijing Eight Imperial Handicrafts, popular science and communication will be

carried out through text, audio reading, short videos and user production content, so as to achieve popular science and interaction. At the same time, user stickiness will be increased, so that users can interact and communicate with others and independently produce content.

In the digital learning strategy, the mode of content publishing by professional users such as inheritors and skill workshops will be introduced into the APP, so that users can experience the learning experience of professionals or inheritors online, reducing the learning cost of users and exposing them to professional knowledge learning. In addition, the APP can set learning rankings, etc., to quantify the learning progress of users. Improve the learning enthusiasm of users, improve the usability and functionality of the APP, and better promote and inherit Beijing Eight Imperial Handicrafts culture and integrate it into modern people's lives.

In the digital inheritance strategy, it mainly focuses on the academic research of senior users and the professional exploration of inheritance mode. By adding professional books and literature to the product, and integrating professional materials and online academic forums of various platforms, the APP can gather more senior users of Beijing Eight Imperial Handicrafts, thus forming a closed loop from entry-level users to senior users, enabling professional production content to drive users to produce content, professional content and interesting forms to coexist, improving the APP's learnability and usability.

Based on the above design strategy classification, the functional framework of the APP is initially formed, as shown in Figure 2.

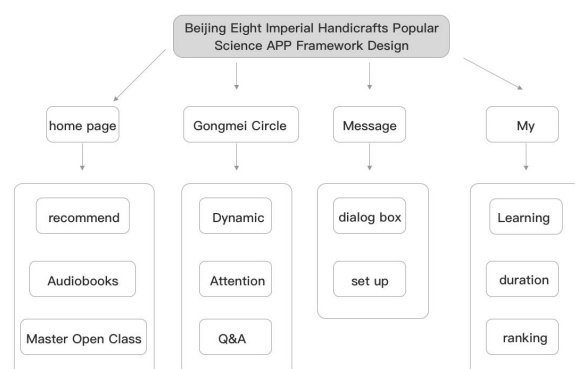


Figure 2. The functional framework of Beijing Eight Palace Handicrafts digital science popularization APP

3.3 Content and Interactive Interface of Beijing Eight Imperial Handicrafts Digital Science Popularization App

By sorting out and concluding User Goals and Business Goals, we can construct the interface of content functions of the APP. When users download and enter the APP for the first time, they will be provided with various categories of Beijing Eight Imperial Handicrafts and part of Beijing traditional handicrafts that they are interested in, so that users can accurately find the content they want to learn, as shown in Figure 3.

In the home page, in the King Kong area of the APP, there are leaderboards, popular areas and the entrance to questions and answers, which mainly show the main function entrance to the user, so that users can choose the appropriate section for learning and interaction according to their personal needs. In the main banner area and the following intelligent recommendation masters, content and other sections, electronic publications or video lectures will be carried out according to users' personal needs and interested Beijing Eight Imperial Handicrafts and forms for intelligent distribution and recommendation. In addition, there will be a floating label on the home page to display the learning progress of the last time, so that the user can enter the interface of the content that has not been learned or browsing the last time in a more convenient way when he logs in the second time, as shown in Figure 4.

In the section of Industrial and American Circle, collaborative production of PGC and UGC can be carried out, so that beginners and general users can increase user stickiness through sharing and communication. Senior users and professional masters can share professional information and lectures of Beijing Eight Imperial Handicrafts for academic exchange, so as to form a combination of user-produced content and professional produced content. Digital inheritance, innovation forms and achievements promotion can be echoed, closely linked with each other, and users can use the path more clearly, as shown in Figure 5.

In terms of user interaction, it pays more attention to user interaction experience. Audiobooks are provided for users to choose from when reading various information and literature, ensuring the ease and mobility of operation for each user group, as shown in

Figure 5. The visual design of the video is also combined with the texture of ground glass background, making the overall playing interface more smooth and highlighting the simple aesthetic characteristics of Beijing Eight Imperial Handicrafts, as shown in Figure 6.



Figure 3.



Figure 4.



Figure 5.

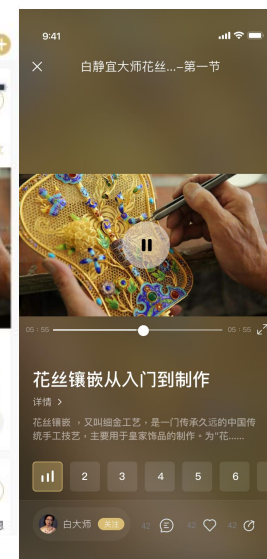


Figure 6.

4. Conclusions

The popularization of digital intangible cultural heritage enables the public to have a more intuitive and shortcut way to understand and learn intangible cultural heritage, thus promoting the dissemination and inheritance of intangible cultural heritage. This topic is based on the content communication and learning of

Beijing traditional handicraft—Beijing Eight Imperial Handicrafts combined with CUBI user experience model, to build the design of Beijing Eight Imperial Handicrafts digital science APP, hoping to promote the dissemination and inheritance of Beijing Eight Imperial Handicrafts and Beijing traditional handicraft, and to provide certain reference and reference for the digitalization of other intangible cultural heritage.

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