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Research on Digital Reading App Design Based on Chinese Traditional Culture

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Abstract:

With the progress of communication technology, the communication media has also changed from paper books to e-books, which has brought about changes in readers' reading methods and reading habits. According to the data survey of research consulting in 2017, the number of digital reading users in China has exceeded 300 million, and the user structure shows a general balance between e-books, paper books, and paper and electricity. The proportion of users who only read e-books and paper books is 36.7% and 23.9% respectively. It aims to analyze the design strategy of digital reading and study the development and application of the combination of digital books and the internet and other multimedia. The digital reading APP needs to collect the story of China folk and make use of "internet + books" integrated with voice, animation, video, network development, and other multi-media content. Digital books need to proceed from the content in the form of graphic expression of the story, and the corresponding production of multimedia files should be made for the contents of graphic fusion. Digital reading APP needs to use the "Internet +" technology to expand the story, enrich the content of digital reading, and digital reading needs to be combined with social media to enhance the interaction and attractiveness.

1. The Combination of the Development of Digital Reading Materials and Folk Culture

With the continuous development of Internet technology and the continuous improvement of the national Internet access rate, digital technology has been widely used in all fields and industries of society. Throughout the online e-books, the original digital reading materials that specifically introduce the content of a certain regional folk culture have not yet appeared. Therefore, combine digital reading materials with folk culture, and show a story or theme through a series of dynamic pictures that conform to modern aesthetics, which is interactive and interesting, so that more readers are interested in folk culture [1]. From the process of reading, the elements of reading ability include perceptual reading ability, comprehension ability, appreciation,

and evaluation ability. Among them, perceptual reading ability is the premise and foundation of reading.

2. The Development of Digital Reading Materials and the Combination of Folk Culture

With the continuous development of Internet technology and the continuous improvement of the national Internet access rate, digital technology has been widely used in various fields and industries of society. At present, there are two types of digital reading materials in foreign countries. One is the professional e-book terminal represented by Kindle, which integrates the digital version of traditional books and the multimedia books especially made for the terminal. The other is the digital reading software represented by Adobe Acrobat. The software displays the book content in PDF format and has the functions of key sentence line marking, instant adding notes, online dictionary consulting, the detailed query of article materials, etc. Throughout the network e-books, the original digital books that specifically introduce the content of regional folk culture have not yet appeared. Therefore, through the in-depth excavation of folk culture, it is necessary to digitally combine and transform the existing paper and electronic books, and present the static books to the readers in a three-dimensional way in combination with moving pictures, audio, video, and expanded materials. Digital reading materials are combined with folk culture to show a story or theme through a series of dynamic pictures in line with modern aesthetics, which are interactive and interesting, so as to make more readers interested in folk culture.

3. Interactive Application Function in the Creation of Digital Reading APP

E-books are mainly composed of static text content and book background. In order to ensure the quality of reading resources, relevant experts or authorities are required to check. In addition, the content of e-book reading should meet the needs of combining in class and out of class. In order to cultivate users' good habits of thinking and prevent users from ubiquitous reading, the digital reading app needs to be combined with the learning progress of the subject. In addition to providing a wide range of optional and exquisite reading materials, it should also provide extracurricular reading resources to expand the teaching of in-class reading, so as to meet the needs of users at different reading levels. The content sources of digital reading apps are different. For example, some reading content is authorized by domestic and foreign regular publishing houses or jointly developed with publishing houses. The content quality of such reading resources is guaranteed, and there is a wide range of reading resources, such as baby fairy tales. It is closely combined with teaching materials and can provide children with reading resources related to the content of teaching materials, so as to consolidate the knowledge learned, such as a reading app. However, such reading content is limited and the operation process is cumbersome. Some reading contents have no book copyright authorization. The digital reading resources independently developed by companies or individuals are easy to operate, but the quality is difficult to guarantee.

3.1. Dynamic display

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In the creation and design of APP, it is necessary to reflect the real-time and dynamic display function of digital reading materials. Using relevant technical software to express the dynamic characteristics of the interface, and through digital processing, the images or characters in the interface have a continuous dynamic effect to form a process of continuous development and change of content and plot.

For example, the "Happy Reading" APP originally designed by this project conforms to the characteristics of the interface design of digital books (Figure 1). There will be a drop-down check-in function on the home page of the interface. Readers can develop good reading habits through the dynamic function of daily check-in. At the same time, it simulates the real bookshelf, and integrates the imitated objects with the flat bookshelf, so that you can find the books you want to read intuitively and quickly. In addition, a push function should be added to the interface design of the APP. The dynamic display function of the interface should be used to push some information related to folk customs in real time, and it should be updated and replaced constantly to make readers interested in folk culture and continue to read. Figure 1, App icon design of "Happy Reading".

Figure 1. App icon design of "Happy Reading".

3.2. Interactive Operation

The interface of "Happy Reading" APP is mainly characterized by a unified design, comprehensive functions, simple and easy-to-use. In the interface design, the interactive technology is fully utilized, and the image reading and interface conversion are carried out to achieve the interactive effect. The main interface is divided into 4 parts: Reading→Bookstore→Discover→My, readers can switch the interface independently according to the needs, control the interactive system to check the content you are interested in, and the reading itself can also respond accordingly, and change the screen through operation to achieve the effect of human-computer interaction [2]. Research shows that interactive operation is the core of digital reading. In addition to human-computer interaction, it is also possible to share and communicate what one has seen, heard, and felt through network communication, so as to realize online interaction between people.

3.3. Vivid Experience

App refers to the software installed on smartphones, which aims to improve the functions of mobile phones and enrich the user experience. With rich content and powerful human-computer interaction, the APP provides personalized services for users. Digital reading materials can also be used by people in the form of apps. In the creation and design of the app, it is necessary to reflect the real-time and dynamic

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display function of digital reading materials. Use relevant technical software to express the dynamic characteristics of the interface, and make the image or text in the interface produce continuous and dynamic effects through digital processing, so as to form the continuous development and change process of content and plot. The design of a digital reading APP is different from traditional paper books and needs to properly integrate diversified elements such as word art, dynamic pictures, audio, and video [3]. Through the cooperation of multimedia technology and digital technology, readers' interest can be greatly aroused, and the visual, auditory and tactile experience brought by digital reading can be experienced. Create a new form of reading, that is, "Internet + Books'. Through rich interactive semantics and vivid interface experience, an effective change in the way of reading is realized.

4. Design And Application of "Folklore Books" Digital Book APP

Although digital reading has obvious advantages over traditional paper reading, there are also studies to prove its shortcomings. Reading is the whole process of receiving, decoding, encoding, and outputting written language. The real-time feedback on pictures or words in e-books may distract users from the story.

The collection and presentation of reading data play an important role. The real reading behavior data can provide a basis for guiding users to read more effectively. Compared with traditional paper reading, digital reading makes it possible to track users' reading tracks in real-time, record users' reading data, and present reading analysis reports.

In order to meet the needs of today's readers for the content and form of reading, the mobile Internet technology is combined with the inheritance and education of folk culture, and the digital reading APP based on Chinese folk culture is designed in a targeted manner. At the beginning of the design, relevant data were obtained in the form of online and offline questionnaires. Among them, 51.64% of the respondents are very interested in folk culture; 74.37% of the respondents hope to learn about folk stories through mobile APP reading; 60.26% of the respondents believe that digital reading materials are convenient and fast, which increases their interest in reading. To this end, a design study of the "Folklore Books" digital reading APP was carried out. Figure 2.
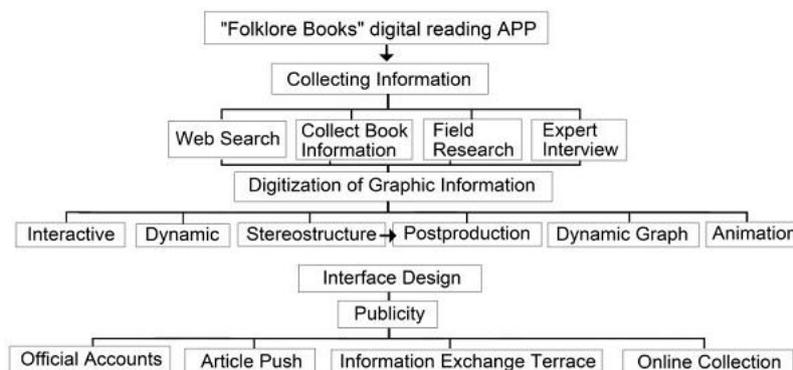

Figure 2. Design Roadmap of "Folklore Books".

4.1. Refine the spiritual connotation

From the perspective of perceptual reading, compared with traditional paper reading, reading with a digital reading app contains more functional features that support the continuous improvement of users' perceptual reading level, bringing users multiple

sensory stimuli such as vision, hearing, and touch. Some scholars have shown that e-books have many factors conducive to users' reading, such as hyperlinks, built-in dictionaries, animated videos, voice, and so on. We sorted out Chinese folk tales and made a digital reading app about Chinese folk culture, namely folklore books. When the digital reading app is used to display folk tales, the design concept takes the story content as the core, and the integrity and readability of the story must be guaranteed. The content of Chinese folk customs is very rich, mainly divided into three aspects: myths, legends, and historical stories related to China, traditional customs, and intangible cultural heritage in China. In the performance of different types of folk tales, we need to focus on the performance of different spiritual connotations. In myths, legends, and folk tales of historical events, it is necessary to show the fearless spirit of the working people who do not yield to nature and fight bravely against difficulties, such as Dayu subduing the dragon and governing the Haihe River in Tianjin, and Cao Cao building canals and water in Tianjin; In the stories of modern people with lofty ideals, we should show their struggle for national independence and the prosperity of the people, and emphasize their patriotism and dedication; In the stories about Chinese traditional customs and intangible cultural heritage, such as quyi and New Year pictures, we should show the optimistic, open-minded and inclusive spirit of the Chinese people. In addition, when expressing the spiritual connotation of Chinese folk tales, we also need to consider the characteristics of the times and convey the positive energy that conforms to the values of today's society to the readers. For example, as a fictional character in the journey to the west, Sunwukong experienced many tests, braved difficulties and obstacles, and finally completed his mission. In the plot setting, it shows the spirit of Sunwukong's daring to resist oppression and fearless sacrifice for the people, so as to highlight modern morality and values and meet the needs of modern society.

4.2. Easy-to-use Interface Design

In the app interface performance of Chinese folk culture, simple design can better highlight the content theme, but also reduce the visual burden of readers, so that they can quickly grasp the key content of the page [4]. At the same time, a simple interface design can better express the charm of traditional culture and conform to Chinese classical aesthetics. Therefore, APP interface design needs unified fonts, simplified icons, and harmonious colors. On the basis of maintaining the overall consistency of the interface, it is designed around the direction of lightness, efficiency, and refinement to make it concise, clear, and more innovative [5]. Ease of use is particularly important for design. The starting point of the design is to serve people. The reading page is the core page of the entire app. Timing needs to follow the principles of saving page space and intuitive and easy operation to improve the overall effectiveness and ease of operation. In the design of the app, readers can realize interface experience and high-level information transmission by clicking, sliding, dragging, double-clicking, long-pressing, and other interface senses.

4.3. Emotional Transmission Principle

In the production process, in addition to digitizing the graphic story, we should also use multimedia forms to dynamically display the story content in a more three-dimensional way. These methods include sound, motion pictures, animation, film and television materials, expanding hyperlinks, etc. These elements should not exist in isolation but should be integrated with the graphic subject in the app to achieve

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integration. Under the influence of the outside world, people's psychology and physiology will produce corresponding emotional reactions [6]. Emotion can change the way people deal with problems and their cognition of reading patterns. Therefore, the emotional needs of readers should be taken into account in interface design to make readers have a strong interest in digital reading materials [7]. The interaction design of the app needs to be based on emotional experience, narrow the space-time gap, attractive visual style, and strengthen emotional interaction at the content level, such as collection and sharing, praise and appreciation, reading pictures with reading, and other emotional interaction functions. Users can learn about folk culture online for free, collect the content they are interested in, and create their own views and drawings Share with friends in the circle to achieve a rich emotional experience.

4.4. Use Social Software to Spread Folk Culture

Research on the design and application of "Folklore Books" digital reading APP, aiming to express the icon design in APP design, the integration of page design, functional design and folk culture, through the interface guide map to achieve the ultimate reading experience, clear at a glance to see the reading menu and frequently used functions. Its architecture is shown in Figure 3. "Choiceness" mainly pushes relevant information and landscape introductions of traditional Chinese folk culture, etc., with the addition of a sign-in function to cultivate reading habits; "Recommend" is for readers to read the content of folk culture they are interested in on the interface. Directly understand the folk culture; 'Book Club" is a way for readers to create stories and draw on their smartphones after reading folk pictures and texts, so as to cultivate their interest in drawing. To deepen the impression of the story, at the same time, you can also share your reading experience and original works of online and offline folklore with your circle friends; "My column" is the part for readers to set APP functions and account management.
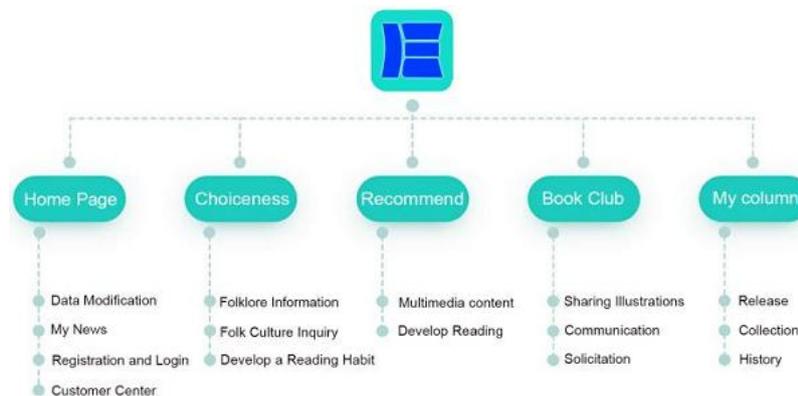

Figure 3. The architecture of "Folklore Books".

5. Conclusions

The popularity of mobile terminals has created conditions for digital reading. The wide application of apps has made digital reading more professional. Digital reading is impacting users' reading methods with its unique characteristics. China is a country that attaches importance to reading. Digital reading is not a subversion of traditional paper reading, but a supplement and extension of traditional reading. Therefore, how to properly integrate digital technology into traditional reading methods. The digital application of Chinese traditional folk culture will also contribute to the development and research of other digital books in the future. This paper deals with the

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comprehensive application of art design, multimedia technology, software application, and other technical fields, and makes a useful attempt for the integration of art design and multi-disciplinary. It is easier for readers to accept and produce interactive effects by showing Chinese traditional culture in the form of a digital reading app, which has certain application reference value for the development and communication of Chinese traditional folk tales and Chinese history and culture.

Conflicts of Interest

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