Design of An Interactive App for Community Elderly Care based on User Experience

Lan Wang
School of Art and Design
Guangdong University of Science and Technology
Guangdong, China
Corresponding author
E-mail: 1015005087@qq.com

Abstract—**Community elderly care has become a hot topic at present, and how to design an APP that meets user experience and is suitable for community elderly care has become an urgent problem to be solved. This article combines elements such as user needs, emotional experiences, psychological states, and usage habits to design the app, making it a suitable interactive app for community elderly care. It also provides reference for future community elderly care interactive app design**, so as to better meet the needs of users.

Keywords—User experience, Interactive, APP, Design, Community Elderly Care.

I. INTRODUCTION

Currently, apps provide users with convenience for work and entertainment, but as apps become more diverse and diverse, people have more choices, so they are beginning to pay more attention to the intuitive experience during product use. Designing a community elderly care interactive app based on user experience can not only better follow user habits and meet user needs, but also greatly enhance the competitiveness of the community elderly care interactive App.

II. USEUSER EXPERIENCE DESIGN CONCEPT

A. Purpose of User Experience Design

User experience, as the name suggests, is a subjective psychological feeling that users experience when using a product. The fundamental purpose of user design experience is to explore the various problems that users experience in the actual use process, as the practical application of design. Designers make corresponding design improvements based on these issues to meet and adapt to the needs of practical applications.

B. Elements of User Experience

When users apply design in practice, their experience is divided into five levels: strategy, scope, structure, framework, and performance. These five levels progress layer by layer from bottom to top, with the former serving as the foundation for the latter. The content contained in the strategic layer is the purpose of the designed product and its corresponding target users. On top of the strategic layer is the scope layer, which mainly includes the actual needs that the designed product can provide to the target users. Above the scope layer is the structural layer, which includes how to display information content and enable users to complete communication and interaction. Above that is the framework layer, which includes three types of design: interface, navigation, and information. Among them, interface design focuses on optimizing the interface; Navigation design is to meet the convenient switching needs of users; Information design is the rational classification and arrangement of information content. Above this is the presentation layer, which is the final effect that users see when actually applying.

C. The Importance of User Experience

Valuing user experience is the most crucial part for designers in product design. The actual experience of users in the application is the fundamental method for product design to achieve target requirements. When users use the product, the interface and interaction design directly affect their senses, and then pay attention to whether it is smooth, vivid, and easy to operate. A good user experience can quickly generate a sense of identification with the product. Product designers can adjust the design direction of the product in a timely manner through user experience surveys, change design ideas, and make software development more practical and convenient. So, in the process of product design, designers should always pay attention to user experience, develop various functions of the software from the user's perspective, and timely and effectively investigate and study the actual needs of users, record relevant information, and then integrate these needs into the product's functions.

III. DESIGN OF AN INTERACTIVE COMMUNITY ELDERLY CARE APP BASED ON USER EXPERIENCE

In order to better design interactive community elderly care apps, it is necessary to understand user needs and position products based on their needs. Innovate the interface icons of community elderly care interactive apps based on user emotional experience. Design the interactive interface of the community elderly care interactive APP based on user habits. Fully consider the psychological state of users during

use and meet their psychological expectations. Upgrade the system based on user needs and usage habits. Optimize interface layout and improve convenience. Add shortcut gestures to the APP interface based on user experience.

A. Understand user needs and position products based on user needs

The most fundamental aspect of user experience is the strategic layer, which is the fundamental purpose of software design. The strategic layer is the product positioning created based on user needs. The so-called user demand is actually a simulation calculation of user image obtained based on user investigation and research. It requires a large amount of factual data as a basis, and through analysis and comparison, user behavior characteristics are extracted from these data, and then an external model of the user is established. Therefore, the information source of user needs is true and reliable, which can become the basic basis for designers and researchers to establish information models, formulate design ideas and directions. So, good software design is inevitably built on a precise grasp of user needs and product positioning. Research on users is essential.

The user's travel patterns, various pain points related to usage habits, etc. are all issues that software design must consider. By conducting research on the advantages and disadvantages of software in the same category, as well as the various aspects that users are most concerned about when using them, the designer will ultimately determine the positioning of this type of community elderly care interactive APP software, which is to serve the elderly population and provide accurate queries Easy to use. In addition, naming software products must also be based on product positioning, which can make it more clear to users at a glance and thereby improve product recognition. The framework for monitoring a person's daily activities by the platform is depicted in Figure 1.
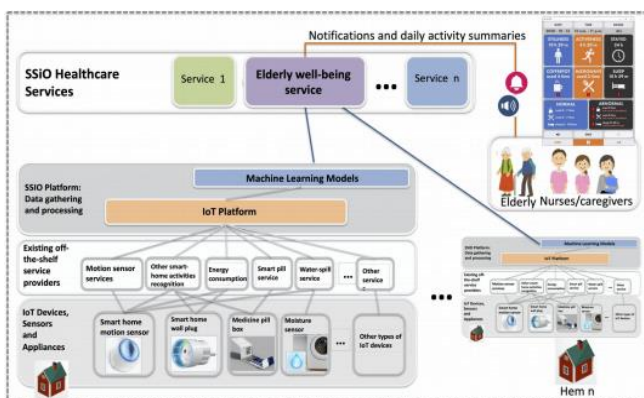

Fig. 1. *Framework for healthcare services.*

B. Innovate the interface icons of community elderly care interactive apps based on user emotional experience

Icons are an important aspect of mobile app interface design. As the facade of mobile apps, the role of icons is to directly stimulate users' visual senses through creative visual elements, allowing users to have emotional experiences such as pleasure, trust, and dependence on the mobile app due to this experience. In the creation of different designers, various visual images will be formed, resulting in a variety of icon design effects. The visual impact of these different icon designs on users varies greatly. Good and creative icons can bring joy and appreciation to users, while poor icon design can make users feel bored and impatient with the mobile app itself.

The image design of mobile apps should focus on catering to the emotional experience of users and leveraging the designer's talent in design. Creative icon design can better evoke emotional resonance among users, strengthen the brand image of the product, and win the favor of users. Therefore, designers should consider the visual elements such as graphics, colors, and text that need to be applied in the design from the perspective of users, starting from the interests of users. They should not deviate from the functionality of the software itself, and must clearly design around the theme, so that users can immediately associate the software's functions with images at a glance. If the theme meaning is deviated from due to excessive pursuit of design, not only will it fail to fulfill the function of the icon design itself, but it will also generate ambiguity and bring unnecessary troubles to users.

Excellent icon design can achieve effective communication between users and mobile applications, enhance user recognition of the software, and create emotional stickiness towards the app. In addition, the icons on the mobile app interface can effectively evoke user memories and internalize self-worth. So, designers of mobile apps must constantly think about how to find the best visual elements to complete the creative design of icons, effectively bringing users closer to the mobile app, and making them identify and rely on the software.

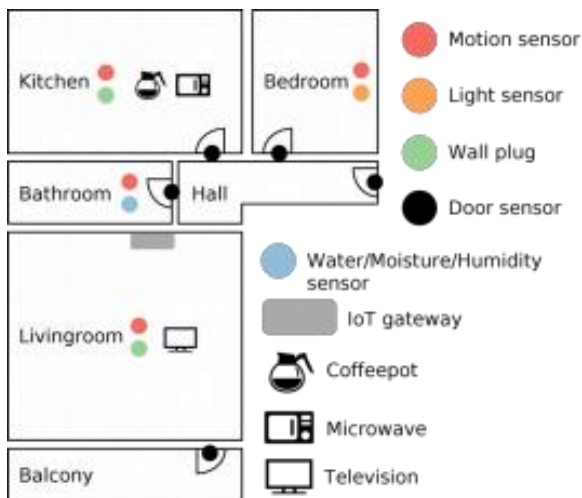Figure 2 illustrates an example of IoT sensor installations in an older adult's residence.

Fig. 2. *Sensor installations in an older adult's residence for collecting daily activity data.*

C. Interactive design of community elderly care interactive apps based on user habits

The interaction between mobile apps and users is actually a process. Mobile apps provide users with the most direct experience at all levels of interface design, which in turn affects their recognition of the functions of mobile apps and determines whether to continue using them. The design of these interfaces must be based on user habits. Designers should design from the perspective of user usage habits, as these often directly affect user interests. We should pay attention to optimizing the actual user experience, so that users can fully feel convenient and fast.

In terms of emotional design, it can effectively increase the stickiness of existing users, allowing long-term users to form usage habits. For users who have not used this app for a long time, when they reopen the app, they can also provide timely update prompts and various suggestions based on their usage habits. On the other hand, emotional design is also beneficial for expanding the user base of new apps. Designers borrow emotional design and combine AI technology to summarize the usage patterns of users during browsing, find the interests of new users, and then push relevant content to users in a targeted manner, allowing new users to experience the convenience of the App.

Three UIs display similar information in different formats is shown in Figure 3.

Fig. 3. *Three UIs display similar information in different formats.*

D. Fully consider the psychological state of users during use and meet their psychological expectations

When users first open the mobile app and enter the interface, they will follow the instructions set by the app to establish a correct and effective psychological model. Therefore, the design of mobile apps must meet the psychological expectations of users, and the overall layout of the interface should conform to the daily habits of the general public. From left to right, from top to bottom, the icons in the app should be arranged logically and clearly, without adding additional reading barriers to users. Designers should fully consider the psychological state of the elderly when using the app. When designing the interface, the elderly should feel that they are in a dominant position during operation, rather than passively following various information provided by the app.

E. Optimize interface layout to improve convenience

The interface layout of mobile apps directly affects the user experience during use. Whether the interface layout is reasonable and excellent is the key to the success of interface design. Designers should adhere to the principle of accessibility in interface design, allowing elderly people to quickly find the desired content without confusion, confusion, and difficulty, and the overall interface should also be beautiful and elegant.

Therefore, designers should allocate the main and secondary functions of the app reasonably, place the most important function icons in the most prominent positions, and use other functions as embellishments around the main functions, making it clear to the elderly at a glance. This not only improves usage efficiency but also increases the sense of pleasure during use. For example, call interface design is a very successful example of barrier free layout. As one of the most basic functions of mobile phones, the elderly can quickly and concisely perform functions such as dialing and searching for the phone book, which is the key to achieving this interface function.

The designer places the dial key, keyboard, and end key at the center of the entire interface, while other secondary functions are arranged around these

main functions. In addition, for some apps with diverse functions, designers should try to add a search function so that users can quickly locate their needs.

IV. CONCLUSIONS

With the development and popularization of digital media technology, user experience design is playing an increasingly important role in the continuous exploration and development of interface design. Although app design is becoming increasingly mature, it is clearly not feasible for designers to rely solely on experience and intuition for design. Nowadays, users are more concerned about the experience and services involved. A good product experience will enhance the grade and value of the product, while also increasing user loyalty to the product. Therefore, studying the personalized interface design of apps under user experience orientation, and improving the efficiency and satisfaction of personalized interface design is beneficial for the promotion of the APP.

DATA AVAILABILITY

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

Lan Wang contributed Conceptualization, Methodology, Writing-Original Draft Preparation, Writing – Review and Editing, Formal Analysis, Data Curation, Investigation, Resources, Software, Supervision, Validation, Visualization.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

REFERENCES

[1] Zhang, Yahui , et al. "Design of Somatosensory Interactive Balance Training Exergame for the Elderly Based on Tai Chi." International Conference on Human-Computer Interaction Springer, Cham, 2022.

[2] Sun H , Kim K S .Evaluation of IoT-Enabled Interactive UI Design Effect Based on the Discrete Mathematical Model. Mobile information systems, 2022(Pt.30):2022.

[3] Zhao Y. Design of Garment Style Recommendation System Based on Interactive Genetic Algorithm.Computational intelligence and neuroscience, 2022, 2022:9132165.