Designing Government Funded Religious E-Readers by Adopting User Experience Methods

[1] Sheng Kai Tang, [2] Wen Kang Chen, [2] Chih Hao Tsai, and [1] Yi Ting Chen

[1] Mobile Communication Product Business Unit, ASUSTeK Computer Inc.,
15, Li-Te Rd., Peitou, Taipei 112, Taiwan
shengkait@gmail.com, florina_chen@asus.com

[2] AJA Creative Design, 10F.-1, No. 48, Sec. 1, Huanshan Rd., Neihu, Taipei 114, Taiwan
david@aja.com.tw, hao520@yahoo.com

Abstract. The design concept of user experience has been popularized and widely accepted in Taiwan. Many companies have successfully transformed from OEM into ODM, and even created their own brand by establishing their internal user experience design department. However, the current user experience research and design in Taiwan focusing too much on mainstream products is going to make the field become another red ocean. In order to prevent another outbreak of price war, the Taiwanese government has put in extensive resources to assist Taiwan's well-known brand companies in R&D, expecting to develop and establish a new product benchmark via the researches on special consumer groups. This research introduce an actual government funded project of ASUS focusing on developing an electronic platform for a special consumer group, Tzu Chi. By going through a series of user experience design and research process, we eventually retrieve some valuable points which could be beneficial to the design of future e-reader.

Keywords. E-Reader, User Experience Design, Contextual Inquiry

1 Introduction

The design concept of user experience has been popularized and widely accepted in Taiwan. Many original equipment manufacturers (OEMs) engaged in consumer electronics have established their internal user experience design department and invested greatly on resource and manpower. Owing to the introduction of this concept, most companies have successfully transformed from OEM into ODM (original design manufacturer), and even created their own brand.

Such brand companies with user experience design capacity mainly undertake the development, design and manufacture of mainstream consumer electronic products, with the design experience mainly focused on office workers aged 20- 40 years old. A few years later, precious user experience data about these target users, such as cultural

background, lifestyle, visual preference and mental model, have been obtained via systematic methods in not only Asia-Pacific areas but the whole world.

However, the redundant researches on the above-mentioned target group have resulted in the excessive concentration of popular products and are guiding Taiwan's consumer electronic industry to another red ocean which may drain the value of user experience design, outbreak another price war, and return to the old road of OEM. Being aware of such dilemmas and realizing the importance of developing new Blue Ocean Strategy, the Taiwanese government has put in extensive resources to assist Taiwan's well-known brand companies in R&D, expecting to develop and establish a new product benchmark via the user experience design and research of special groups.

Hence, by introducing an actual research and design case subsidized by the Technology Development Program of Taiwanese government, this study illustrates how a government supported project of a brand company (ASUS) focuses on the user experience design and research of special consumer groups (Tzu Chi) and what innovative ideas based on the findings in the research are proposed.

2 Case Background

2.1 Technology Development Program (TDP)

The full name of TDP is called Technology Development Grants Program [3], which is the economic development program administered by the Ministry of Economic Affairs, Taiwan. In this program, government provides funds to enterprises to share the risks, encourage the developments on risky technologies, cultivate professional talents and create opportunities for new innovative companies.

2.2 ASUSTek Computer

Established in 1990, ASUS originally focused on motherboard development and manufacture. The company became famous for its notebook PC in 2001 and created a wave of subnotebooks in 2007 with its Netbook EeePC. In recent years, it concentrated on tablet computers and made the tablet computer market become more diversified. The Asus Design Center [2] was established in 2001 focusing on the design and R&D of all ASUS products with its offices distributed in Taiwan, Shanghai and Singapore. Its User Experience Design Department was set in 2007.

2.3 Tzu Chi and Its Electronic Platform

Tzu Chi [4] is the largest Buddhist charity team founded in Hualien by Master Zen Yen in 1996, mainly undertaking the businesses of charity, education, medical service and culture, with more than one million volunteers all over the world. Since the members have to read the instructional talks by the Venerable Master and Buddhist scriptures, as well as learn the activity messages and donation fundraising projects, it au-

thorized ASUS to develop an electronic platform for Tzu Chi. By 2011, a total of 5000 Tzu Chi electronic platform of Generation 1 have been manufactured and put into service for Tzi Chi members. After learning the joint development of an electronic platform between Asus and Tzu Chi, the Ministry of Economic Affairs encouraged them to apply for the Technology Development Program to start the improvement of Generation 2, so as to enhance the R&D investment in special groups. Furthermore, apart from deeply studying about user experiences in electronic platform of special groups, it also hopes to set another trend via the newly created electronic platform as well as ASUS' brand experiences.

3 Research Method

Entrusted by Asus, the user experience research and design team, AJA Creative Design [1], conducts the improvement researches on the first generation of Tzu Chi's electronic platform and puts forward the design concept for the second generation. Based on the user experience research methods, including interview, contextual inquiry and participatory observation, the team tries to figure out the potential design strategies and creates an interactive design prototype to conduct design communication and user testing. All the experiment processes of the three methods are recorded in videos and audio materials which are further analyzed by using method of protocol analysis.

3.1 Interview

Six Tsu Chi members who have been long-term users of the Generation 1 electronic platform were interviewed. Through the open interviews, the users' subjective opinions on using the platform were obtained. During the interviews, the users were requested to operate the platform to achieve the specified tasks, such as reading the instructional talks by the Venerable Masters, reading Buddhist scriptures, searching for activity messages, writing reading notes of book club and raising donations. The researchers asked further questions depending on the users' special operating behaviors (Fig. 1).

Fig. 1. The actual interview scenario

3.2 Contextual Inquiry

Another six Tzu Chi members were selected to undergo the contextual inquiry, which practically observes the operation of electronic platform by users in actual contexts, such as Tsu Chi Bodhimanda, fundraising aspect and their homes. During which, the researchers asked questions to deeply understand the various ways of using under different contexts. In addition to the set contexts, they also observed and recorded the users' related life contexts (when not using the electronic platform), expecting to dig out the users' potential demands.

3.3 Participatory Observation

Considering the regular reading group by Tsu Chi members every week, the study selects the co-reading contexts of a large size (100 persons) and a small size (ten persons) to conduct the participatory observation (Fig. 2). The researcher acted as one of the members to participate in the reading group and interact with the users, so as to observe and record dynamically.

Fig. 2. The small size reading group

3.4 Design Strategy

Through the above-mentioned research methods, the team conducts the protocol analysis of the 15 hour-long audio-video materials. The analysis encodes the materials based on the keyword definition and classification, so as to find out the specific repetitive activities and behaviors. Finally, the study summarizes the users' top five demands, whereby the design team further obtains five design strategies including providing up-to-date information, simplifying e-book classification, enabling intuitive sharing, increasing the speed of taking and searching notes, and linking related information. These strategies are further transferred into actual design solutions in the next stage.

3.5 Design Prototype

Synchronizing with the Tsu Chi Information Center . The instructional talks by the Venerable Masters are all uploaded to the website via the Tsu Chi Information Center to enable the members to access them immediately. However, the study finds out that the on-line information requires users' initiative in searching, while accessing the internet information is not easy for Tsu Chi members who intensively work outside or those middle-aged and elder. Consequently, the study proposes to add dynamic instructional talks and activity information on the portal of the electronic platform to push information to users actively (Fig. 3).

Fig. 3. The designed portal with dynamically pushing information

Replacing Folders by Label Classifications . Most of the electronic Tsu Chi scriptures have been digitalized already and can be downloaded into Tzu Chi electronic platform easily via internet. However, due to the large quantity of scriptures, it is not easy to search the one required, thus the willingness and frequency of users to read electronic scriptures are reduced. Accordingly, the study suggests displaying the frequently-read scriptures on the portal of the electronic platform and adding dynamic label classifications to replace the stable classification folders (Fig. 4).

Fig. 4. Using tagging system for classifying a great amount of scriptures

Synchronizing Multi-person Sharing Screen . How to share the desired contents to the members in the reading group or achieve the sharing result is another demand that needs to be satisfied in this study, since both the Tzu Chi electronic platform and the existing e-readers on the market fail to provide such services currently. In this study,

the researchers put forth that the participators of a reading club can be connected via internet and be visualized on the platform, so that their contents can be shared to everybody by clicking the specified participators. The sharing modes contain both whole screen sharing and individual selection (Fig. 5).

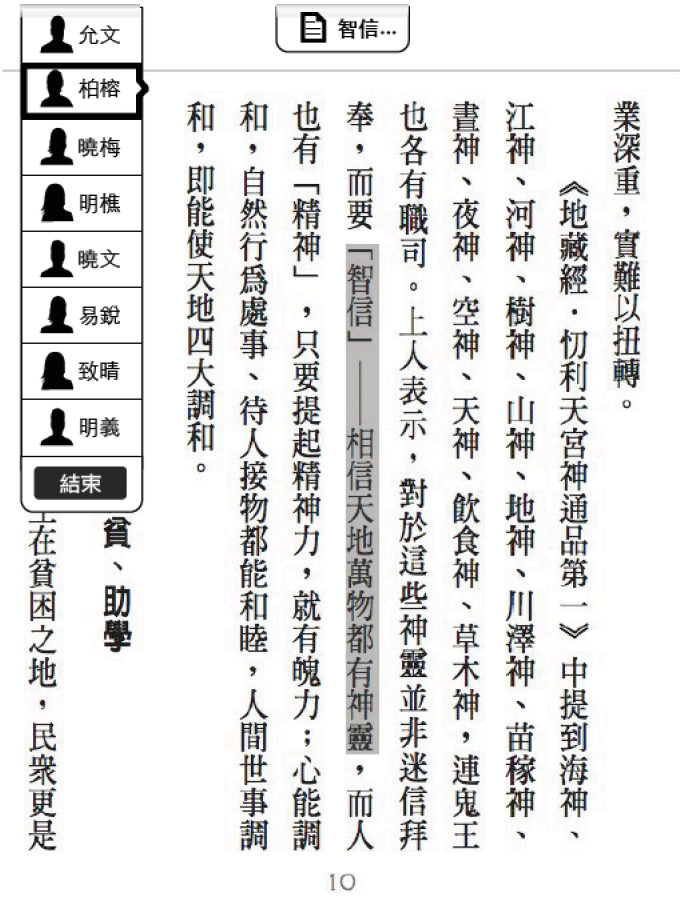

Fig. 5. Sharing content to group members by easily selecting and clicking

Note Marking and Content Labeling . It is a common behavior requirement of Tsu Chi members to write down important messages on papers or sticky notes anytime anywhere. Hence, the study presents that if the functions of easy-notes and easy-search are embedded into the electronic platform, a better user experience can be created. Users can just click the texts to be commented on and make notes in the pop-up noting-window; besides, a bookmark label will be shown on the side area of the

platform screen to indicate the locations of the comments, so that they can be found quickly by clicking the labels (Fig. 6).

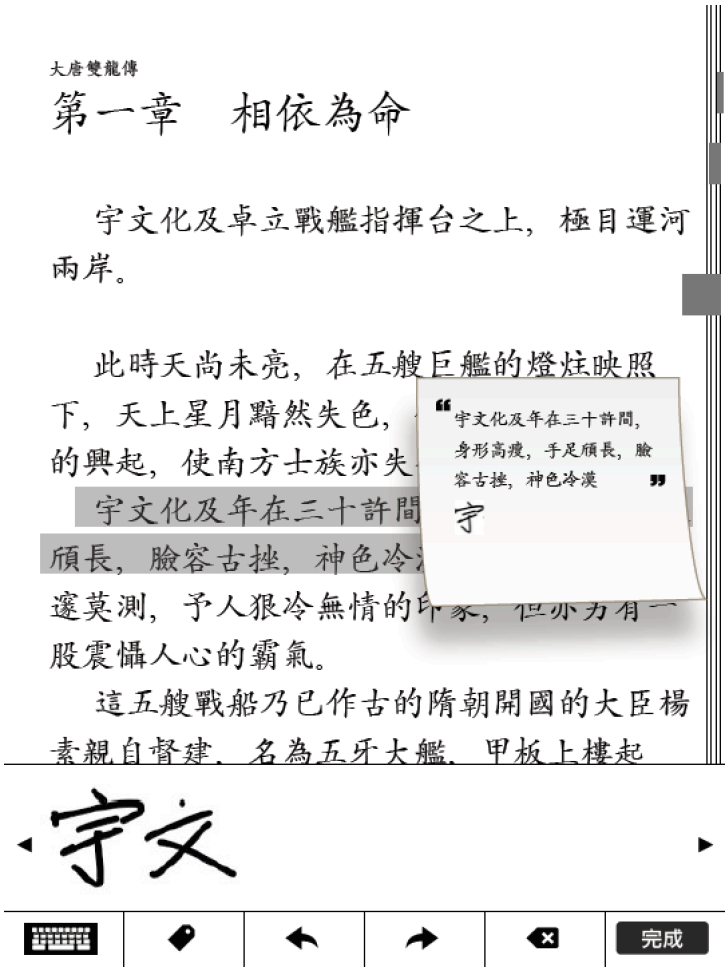

Fig. 6. Simply selecting texts pops up a note taking window and a label at the side

Direct in-time Searching by Selecting Texts . Extended reading is a frequent required demand, when Tsu Chi members read scriptures. They often intensively switch from one scripture to another relevant one to look for quoted information. As a result, the automatic searching among different e-books is one of the primary functions that must be provided by the electronic platform. The study proposes to activate the searching in both online and electronic libraries when the users select specified texts, and then display search results dynamically to the users.

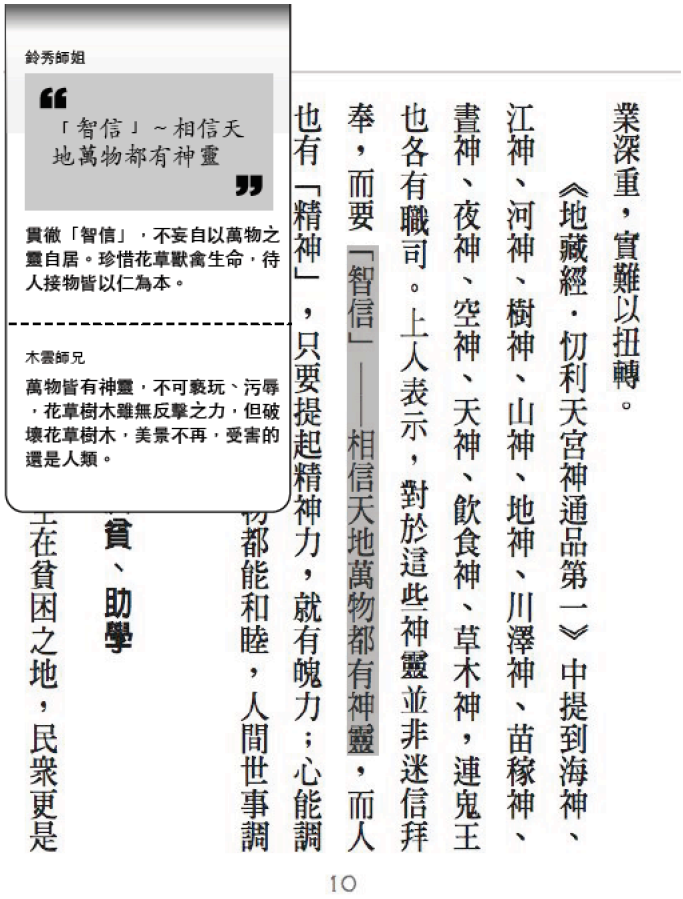

Fig. 7. Selecting a sentence triggers relevant content searching among e-books in both digital and online libraries.

3.6 User Testing

After implementing an interactive prototype, another six Tsu Chi members were invited to conduct the users testing. The testing adopts contextual inquiry, namely, operating designated tasks in specific contexts by users. Similarly, the whole process is recorded in videos and audios to conduct protocol analysis.

4 Analysis and Discussion

In the last user test period, we found several interesting and important points. First, the user thinks the dynamic information center on the portal is very useful, as they

will not miss important activities in this way. In the past, most of the activity information was delivered by word of mouth, which often lacks timeliness. Second, with electronic scriptures categorized by tags, the Tzu Chi members who are mostly over forty years old don't have to memorize the folder where they saved the e-scriptures. Third, in the past, it was difficult for attendees to quickly find the content the sharer was talking about when using the electronic platform in the reading group. The function of synchronizing and sharing information makes their reading more efficient. Fourth, in the past, the user often wrote down the key points on the notepad while reading the scriptures. Now, the intuitive note taking realizes in the electronic platform so that the user doesn't need a notepad or miss any important information. Fifth, the function of in-time searching improves the quality of reading due to not being interrupted by the search for other scriptures.

Of course, there are also some problems that need to be improved. First, the character size must be enlarged to make it easier to read; secondly, the note labels should be large enough for users to find and click easily; and lastly, the handwriting area shall be expanded for convenience. However, all three points are main requirements of elder users, and researches on such visual capacities are relatively few in this study.

5 Conclusion and Future Research

The e-reader will become a trend in future development. Current products on the market pay more attention to the individual reading needs and the acquisition of reading content. But in this paper, it is found that the needs of group reading and the integration of the e-reader with the dynamic information platform are both needed by a special group like Tzu Chi. Though lacking in evidence, we believe that the findings and design of this study are very likely to be useful and successful when applying on ordinary users. A case in point is the co-reading mode. It is possible that the encouragement of e-reading through the integration of the co-reading function and its application to teaching will bring about another e-reader trend.

Reference

1. AJA Creative Design, http://www.aja.com.tw/
2. Asus Design Center, http://www.asusdesign.com/
3. Technology Development Grants Program, http://www.moea.gov.tw/Mns/doit/content/Content.aspx?menu_id=5375
4. Tzu Chi, http://www.tzuchi.org.tw/