The Analyses of Interface Design of Web-based e-Picture Books in Taiwan

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Abstract - Web-based e-Picture Books can integrate the strong points of multi-media and offer the reading experience that is different from printed paper picture books. In light of increasing e-picture book websites, the research aims to understand the development status of e-picture book websites in Taiwan and give recommendations for improvement. Through 1) 12 adults who filled out the questionnaires about operating and using e-picture books; and 2) 6 surveyed (two teachers, two parents and two school children) who were observed in their operation and given in-depth interviews, the research analyzed three interface designs of e-picture websites in Taiwan: “Guru Bear Parent-Child Common Reading Network: Dear Bear Reading Room”, “Kiddo Book” and “CCA (Council for Cultural Affairs) Children Cultural Center: Picture Book Garden”. The results of analyses were: 1) most of them were flipping style; 2) primarily linear development; 3) less interactive; 4) most of them were adapted from physical printed books; 5) it is difficult for children to register additional account and install browsing software. The recommendations for future publishers and designers were: 1) take advantage of elements of interactive design in multimedia; 2) increase the interaction of the story; 3) strengthen the control power of users; 4) create all-new e-picture books; and 5) integrate e-picture book platforms.

Keywords: e-Picture Book, e-Storybook, e-Book, Interface, Usability

1. INTRODUCTION

After the launch of iPad by Apple, the e-Book market has reach climax. The e-Books in the current markets could mainly refer to the e-Book readers that every manufacturer has their own specifications. But most of the e-Books present themselves on the reader in the form of static image and text, or even only the electronization of printed books. So strictly speaking, there are few e-Books that use multimedia elements and interactive design to design exclusive contents for the e-Book. Being not able to recognize the words, pre-school children usually look at the colors and patterns with high novelty. E-picture book is drawing-based, supplemented by a small amount of text and could be a helper for cultivating reading habits. It combines multimedia elements plus convenient online platform to design e-Picture Book. From the aspect of creation, production and browsing, it is a new try and challenge that could transmit and distribute by an economic and convenient way and provides reading contents that have different media expression and sensory stimulation. The research selected three e-Picture books websites in Taiwan to conduct interface design, evaluation and analyses and understand the current situation of development before providing recommendations for improvement.

2. LITERATURE REVIEW

2.1 Electronic Book

The Chinese term “electronic book” is directly translated from English. In literature, Van Dam mentioned electronic books for the first time. In a broad sense, it means the media that stores and transmits the characters and pictures information through electronic channel (Lwo, 1995). Barker (1992) argued that the electronic book was used to describe new type of books that was different from traditional paper books. But like paper books, they were composed of pages. The difference was that each page of an electronic book was designed and dynamic electronic information. Electronic book could be considered an aggregation of multi-pages, responsive and lively multi-
media (includes information of characters, picture or voice). A picture book is an art form that combines visual and verbal narratives in a book format. A true picture book tells the story both with words and pictures. Electronic picture book (or e-Picture book, EPB) is to present picture books in the electronic form including CD-ROM, WWW. The applied multi-media elements include characters, pictures, animations, voice, sound effects and music. It mainly operates through mouse and keyboard in user control (interactive operation pattern). The manipulation of mouse includes drag and click whereas the manipulation of keyboard I includes character enter and key enter. The source of story materials includes adaptation and creation. The E-book in the research means web-based e-Picture books.

2.2 Usability

Lazar (2006) highlights ease-of-use as an equally important usability consideration he also advocates for a balanced approach to Web design that allows for the appropriate use of media elements such as graphics, plug-ins, and animation. Schneiderman (1993) emphasizes consistency and predictability in interface design that provides for a high level of user control. Usability means that the people who use the product can do so quickly and easily to accomplish their own tasks. This definition rests on four points: (1) Usability means focusing on users; (2) people use products to be productive; (3) are busy people trying to accomplish tasks; and (4) users decide when a product is easy to use. (Dumas & Redish, 1999)

Usability is the quality of attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process. Usability is defined by five quality components: (1) Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design? (2) Efficiency: Once users have learned the design, how quickly can they perform tasks? (3) Memorability: When the users return to the design after a period of not using it, how easily can they reestablish proficiency? (4) Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors? (5) Satisfaction: How pleasant is it to use the design? (Nielsen, 2003)

In conclusion, usability includes considerations such as: (1) Who are the users, what do they know, and what can they learn? (2) What do users want or need to do? (3) What is the general background of the users? (4) What is the context in which the user is working? (5) What has to be left to the machine?

3. METHODOLOGY

3.1 Procedures

(1) Browse separately assigned e-Picture books (two for each type of each website).

(2) Conduct questionnaire surveys and interviews through five-point Likert items: a. strongly disagree; b. disagree; c: neither agree or disagree; d. agree; e. strongly disagree. The contents of questionnaire include the satisfaction with the items such as overall page design, convenient to find e-Picture books, easy to operate, appropriate size of footage of story, animation design of story, suitable for children on their own operations. The primary contents of interviews focused on the questions on the e-Picture operations in different websites to understand the reason of satisfaction or dissatisfaction.

3.2 Subjects

(1) 12 adults filled out the questionnaires (their education background included ten graduated from the children education related departments, two from the department of the Chinese language and literature; the occupations included three mothers who had young children, two kindergarten teachers, two elementary school teachers, five early childhood education educators).

(2) Six people included two children (one 10 years and six month boy, one 10 years and three month girl), two kindergarten teachers, two parents were received one-to-one in-depth interviews on the e-Picture books they had browsed. Among them, four adults were picked up from the adults who had filled out the questionnaires.

3.3 Introduction of Websites

(1) ‘Guru Bear Parent - Child Read Together Net’ is specifically targeting to the families that have 3-12 years-old children by providing a parent-child interactive space that could trigger dream.

(2) ‘Kiddo Book’ is the first bilingual picture book website for children in the form of animation. They target 3 to 9 years old children and parents as main communication subjects in the initial stage.

(3) ‘Children Culture Hall’ is established by Council for Cultural Affairs (CCA), Executive Yuan in 1999. It produces story animations and interactive games that provide children with a relaxed, lively pattern to read and cultivate their reading habits.
Table 1. Comparison of three e-Picture Book websites in Taiwan

<table>
<thead>
<tr>
<th></th>
<th>Guru Bear Parent - Child Read Together Net</th>
<th>Kiddo book</th>
<th>CCA Children Culture Hall - Picture Book Garden</th>
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<td>1999.09</td>
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<td>✓ NT$290/month</td>
<td>Free</td>
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<td>Page Electronic Book</td>
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<tr>
<td>Inactive English Picture Book</td>
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<td>• Interactive Learning</td>
<td>• Game zone</td>
<td>• Game (each story)</td>
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<td></td>
<td>• Three-dimensional play zone</td>
<td>• Three-dimensional play zone</td>
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<td>• Creation zone</td>
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<td>• Discussion (each story)</td>
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</table>

2009.06.05 Update

Figure 1. Example of Inactive English Picture Book
Figure 2. Example of Kiddo book
Figure 3. Example of CCA Children Culture Hall - Picture Book Garden

4. RESULTS AND CONCLUSIONS

Summing up the results of questionnaire and interviews and list as follows:
(1) The Design of Website Homepage
   The difference of average scores of homepage design between three websites not great, the average scores are above 3.7.
(2) The Design of Interface
   The e-picture book of “Kiddo Book” needs extra installment of browsing software and has more options of interactive functions, the average score of manipulation design is the lowest in all websites. The interface design of “Kiddo Book” is considered by users as the best one. It provides switching of previous/next pages, options of different captions (English/Chinese/Chinese plus phonetic notation), options of caption location, play/pause, automatic/manual, etc., that is, it provide more user’s control.
   (3) The Screen Size of Story
   The e-picture book of “Kiddo Book” is playing in almost full screen and get highest score 4.7. The screen size of “Children Culture Hall” and “Guru Bear Parent - Children Read Together Net - Interactive English Picture Book” are the smallest and their average scores are the lower.
(4) The Design of Story Animation
   The story animation of “Guru Bear Parent - Children Read Together Net - E Live Picture Book” and “Children Culture Hall” has more camera effects and dynamic expression of characters and gets higher scores. The story of “Guru Bear Parent-Children Read Together Net - Electronic Picture Book” has no expression of animation and most of expressions of animation are page flipping, the
average scores are lowest.

(5) Story Voice

“Guru Bear Parent - Children Read Together Net - E Live Picture Book” and “Kiddo Book” are most highly praised by interviewers. The dubbing of different roles is different.

(6) Whether suitable for children to self-manipulate

“Kiddo Book” needs extra installment of browsing software, so it obtains the lowest score 2.4 in the item of whether suitable for children to self-manipulate.

“Children Culture Hall” need not to register user’s name and most easy to manipulation, so it obtains the highest score 4.2. Two interviewee children indicated that it is difficult for them to register user’s name and had no such experiences. Obviously, it is also difficult for them to install software for viewing the picture books.

(7) The Design of E-Picture Interface

The users pointed out that the “Kido Book” provided the most control options including page up and down switch, different subtitle options (English/Chinese/Chinese plus phonetic notations), subtitle position options, play/pause, auto/manual play, that is, it provides more user controls.

As a whole, there were following common points in the designs of e-Picture Books: a) flipping pattern; b) linear based; c) insufficient interaction; d) most of them were adapted from printed books; e) needed extra registration account number and installment of browsing software that was difficult for children. So far, there have not yet been the most satisfactory design for web e-Picture Book and there still are much space for improvement.

Table 2. Analysis of Questionnaire Statistics

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5. SUGGESTIONS

(1) Make good use of multimedia interactive design elements

The e-Picture Book should emphasize more on the use of multimedia interactive design and allow the readers have the reading experiences that are different from the printed books. Unfortunately, the performance on the multi-media by existing e-Picture Books in three websites was not, on the contrary, good as Living Books series. So they should make good use of the advantages of web version to interact with their readers to extend reading activities.

(2) Increase the interaction of story contents

The e-Picture Books in the three websites were adapted from physical printed books that the publishers operated them for nothing more than the added-values of original publications. Most of story contents are linear developments that lack of interaction. In future, they should bring the advantages of multimedia and web into the full play and increase double or multi-routes of story development to strengthen the interactions between the readers and story contents.

(3) Enhance users’ control

“Kido Book” provides the function options including page up and down switch, different subtitle options (English/Chinese/Chinese plus phonetic notations), subtitle position options, play/pause, auto/manual play. It provides the most user controls in the three websites. Most of the surveyed recommend that it increase the control options of the size of screens and subtitles that the users could decide by themselves the size of picture and subtitle, that is, it enhances the users’ control power.

(4) All-new creative e-Picture Book

Most of the existed e-Picture Books came from the adaptation of physical printed picture books that is the digitalization of existed publications. They usually use scanning method to process the images or part of images were processed through simple animation and nothing else. It is pity that they did not consider the creation of e-Picture Books from the angle of multimedia elements and interaction. So the creation and publication of all-new e-Picture Books should be encouraged.

(5) Integrate e-Picture Book platform

At present time, most of e-Picture Books websites in Taiwan are operated by the publishers, some even need to install browsing software for reading that is not convenient to the readers. In future, they should construct an integrated platform that the e-Picture Books from different publishers could be read by the users at the same time. It would not need to set different accounts and could further to reach the goal of mutual exchange and healthy competition.

REFERENCES


AUTHOR BIOGRAPHIES

Pei-shiaun Tsai is a Ph.D. student in the Graduate School of Design at National Yunlin University of Science and Technology, Taiwan. She received her Master of Education degree in educational technology from Tamkang University, Taiwan, and her Bachelor of Education degree in early childhood education from Taipei Municipal Teachers College.

Man-lai You is a professor in the Department of Industrial Design at National Yunlin University of Science and Technology, Taiwan. His research interests include Ergo Design, Design Management, and Design Education. He is currently editor of the International Journal of Design, Journal of Design, and Journal of Science and Technology.
Appendix: The Results of Questionnaire Statistics

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