

# Usability analysis of electronic picture book websites in Taiwan

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**Abstract:** Electronic picture book integrates advantages of multi-media and provides a reading experience that is different from reading other printed picture books. In this research, we analyzed the usability of three e-picture websites in Taiwan through a questionnaire survey and interviews to understand the current situation of the development of e-picture books in Taiwan and make recommendations for improvement.

**Key words:** *Electronic picture book, e-Picture Book, e-Storybook, e-Book, Usability*

## 1. Introduction

With the development of Internet and computer multi-media technology, the traditional media forms like book, film and voice have had other modes of presentation that have brought us more diversified design and development. Preschool children do not know the words, so they have high freshness on colors and patterns. Therefore, the reading materials that are picture-based and supplemented by a small number of characters become a good helper for cultivating reading habits. Most of picture books are issued through entity printed books. But today the network is already very popular that the development of picture book is not limited to entity printing. Through multi-media and Internet, they could present more diversified and interactive contents.

Applying computer multi-media to presenting picture book is a new try and challenge for creation, production and browsing. The biggest advantages of e-picture book lies in their transmission and distribution by economic means and presenting the development of multi-path story, interactive design and combining multi-media elements. In this research, we selected three e-picture book websites to analyze usability and understand the current situation of the development of e-picture book in Taiwan and make recommendation 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 [4]. Barker [1] 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.

## **2.2 Usability**

Lazar [3] 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, plugins, and animation. Schneiderman [6] 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) users are busy people trying to accomplish tasks; and (4) users decide when a product is easy to use. [2]

Usability is a quality 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 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? [5]

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. Method**

### **3.1 Procedure**

- (1) Watching designated EPBs separately (Two books each category for each website).
- (2) Conduct five-point Likert item (1:Strongly disagree, 2:Disagree, 3:Neither agree or disagree, 4:Agree, 5:Strongly Agree) questionnaire survey and interviews.

### **3.2 Subjects**

- (1) Ten adults for questionnaire survey and interviews (Nine graduated from children education – related departments, One form department of Chinese; Two parents who have baby children, Two kindergarten teachers, One elementary school teachers , Five early childhood workers).
- (2) Two children for interviews (One 10 years and 6 months boy, One 10 years and 3 months girl).

**Table 1.** Comparison of three e-Picture Book websites in Taiwan

	Guru Bear Parent - Child Read Together Net			Kiddo book	CCA Children Culture Hall - Picture Book Garden
Website	http://www.gurubear.com.tw/			http://www.kiddobook.com/	http://children.cca.gov.tw/garden/
Establishment Time	2008.07			2006.12	1999.09
Membership Registration	✓			✓	
Fee	✓ Need credit for reading and earn credit for publishing article			✓ NT\$290/month	Free
Trial Subscription	✓ 3 trial subscriptions per category			✓ 6 books trial subscription	The contents of trial subscription is not complete version
Install Browsing Software				✓	
	E-Live Picture Book	Page Electronic Book	Inactive English Picture Book		
Story Amount	24	23	19	111	121
Story Voice	✓	✓	✓	✓	✓
Story Animation	Better	None	Good	Limited	Better
Extension Activities			•Interactive Learning	•Game zone •Three-dimensional play zone •Creation zone	•Game (each story) •Reading guide (each story) •Discussion (each story)

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### 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.

### 4. Results

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.

## 5. Conclusions

(1) Design EPB from the Angle of User Pay websites usually need user’s name to control permissions, but that will bring inconveniences to the users. Besides, extra installment of browsing software is also most criticized by users. So it is very important to make users easier, more convenient to browse. Perhaps, issuing CD is a good choice and it is convenient for repeated watches.

(2) Develop EPB Multi-Media Interactive Design EPB should strengthen its multi-media interactive design to bring the full play of the characteristics of multi-media and increase the reading experiences that are different from reading printed books. Unfortunately, the EPBs of existing three websites were inferior to Living Books series in multi-media performance. The advantage of Internet could add the interaction with other readers and enrich the contents of extension activities.

(3) Strengthen the Interface Design of EPB “Kiddo Book” 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. It provides the most number of user’s control. Most of interviewees suggested that it should add the control options of size of screen and captions, that is, increases the user’s control.

(4) Integrate the Platform Design of EPB Now most of EPB websites are operated by publishing companies, that is, with existed print and publications as the source of subject matter. In future the operators of the websites may consider establishing a common a network platform that allows the EPBs from different publishing companies could be watched on the same platform. The creator of EPB should be encouraged to create directly in the form of multi-media that is different from the current practices of just adaptation of printed versions.

## 6. References

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