The Development of the E-Book Model for Basic Thai Visual Art

Atipat Vijitsatitrat

Faculty of Fine Arts, Srinakharinwirot University, Bangkok, Thailand

Introduction

Electronic Book or e-book is becoming popular in the society nowadays, in the fields of communication, advertisement, and entertainment as well as education. Education institutes in almost every levels of education focus on improving the education in the ICT (Information and Communication Technology) era (Prayad Jiraworapong, 2006). In addition education provision is based on quality criteria, it should develop and imply of information technology to the education, development of learning, and researches for education quality. Importantly, media and technology of media and innovation development were provided for using in education activities. Educational media and various teaching protocols help students to effectively improve their self-learning activities, as the objective of learning. Students might participate in activities individually or by group based on their performance (Saisil Sayuen, 2008). In addition, reading e-book is very popular in foreign countries due to widely using of pocket PC, palm, and mobile phone. Paitoon Seefa (2008) suggested that these compliances communicate via communication networks such as wi-fi, 3G, 4G and some equipment, and then allow more convenient and fast information sharing.

To date, education employs several forms of information technology in many subjects. Thai Visual Arts is a mandate subject in Art Education degree. It focuses on learning of history and basic Thai drawings. The subject is very crucial for student of Art Education program. Thai drawing is very complicate and depended on ancient masters. Most teaching documents are printed media with no animation, sound, and traceable proper drawing methodologies. Moreover, teaching of basic Thai arts is lack of simultaneous relation to external information. Explanation or demonstration of drawing on student's demand allows them self-studying.

Hence, researcher interests to develop an e-book format of Principle of Thai Visual Arts subject, to enhance education performance and simultaneous learning, and to adopt modern learning concept.

Study Objectives

1. To develop the e-book model for Principle of Thai Visual Art

2. To compare the learning achievement of Principle of Thai Visual Art between pre-learning and post learning

3. To investigate the satisfactions of the Principle of Thai Visual Art e-book.

Research Methods

The samples in this study were 30 students who registered for the Principle of Thai Visual Art e-book from Art Education, Acting Education and Music Education programs, Faculty of Fine Arts, Srinakharin-

wirot University, in the first semester of academic year 2013. They were sampled by purposive sampling method.

1. Development of a prototype of e-book in Principle of Thai Visual Arts subject: Researchers collected texts, documents, principles, and theories that relate to development of e-book in Principle of Thai Visual Arts subject to develop a prototype of e-book of Principle of Thai Visual Arts subject which is to be used on the focus group as followings;

Step 1: Study documents and researches related to principles of design and develop e-book for Principle of Thai Visual Arts subject to analyze and determine components of e-book for Principle of Thai Visual Arts subject, contents, activities, experience, media, and evaluation methods.

Step 2: Conduct a focus group after studied related documents and researches in Step 1. Researcher brought issues obtained from related documents and researches to set a direction of a focus group of development of e-book for Principle of Thai Visual Arts subject. A focus group is to conclude to appropriate development of e-book for Principle of Thai Visual Arts subject. The e-book for Principle of Thai Visual Arts subject is to created by 6 experts.

2. Creation of e-book for Principle of Thai Visual Arts subject, there are 2 steps as followings;

Step 1: Create a program of e-book for Principle of Thai Visual Arts subject, by the information obtained from studying of basic information

Step 2: Determine the quality of e-book for Principle of Thai Visual Arts subject, the evaluation is divided into 2 parts;

1. Content evaluation by 3 experts of Thai Visual arts teaching, they evaluated the accuracy of the content including;

1.1 Evaluation tools are a form of congruence evaluation of e-book for Principle of Thai Visual Arts subject, and objective of the development. A form is 3-level rating scale.

1.2 Information collection, content valid-ity of e-book for Principle of Thai Visual Arts subject is evaluated by 3 experts.

1.3 Program congruence analysis was represented as Item - Objective Congruence (IOC). It was evaluated by experts as 3-level rating scale. Content of e-book for Principle of Thai Visual Arts subject has to obtain at least 0.50 IOC and was improved by experts' opinion (Booncherd Pinyopong-anan, 2002).

Experimentation

Experiment to compare learning achievement a subject of Principle of Thai Visual Arts, pre-test and post-test, by using e-book of Principle of Thai Visual Arts subject, was divided into 2 steps;

Step 1: Studying of comparing learning achievement a subject of Principle of Thai Visual Arts, pre-test and post-test, by using e-book of Principle of Thai Visual Arts subject among sample group.

Researcher collected information and conducted a study of usinge-book of Principle of Thai Visual Arts and then evaluated the information gathered by statistical methods as followings;

1. Researcher brought expert-approved e-book of Principle of Thai Visual Arts to the sample group. Researcher used a method of the quasi-experimental research, one grouppre-test post-test design as shown in Table 1.

Learning achievement of pre- and post -learning test of usinge-book of Principle of Thai Visual Arts subject were analyzed and concluded by t-test dependent statistical method.

Results

1. Development of e-book of Principle of Thai Visual Arts

Researcher used the information shown in 4.1.1.1 to create a prototype e-book of Principle of Thai Visual Arts to use in the focus group. The form of e-book of Principle of Thai Visual Arts is shown in Figure 1.

Table 1: One grouppre-test post-test design

Group	Pre-learning test	Teaching experiment	Post-learning test
A	T 1	X	T 2

A   represents sample group
T 1   represents pre-test
X   represents experiment
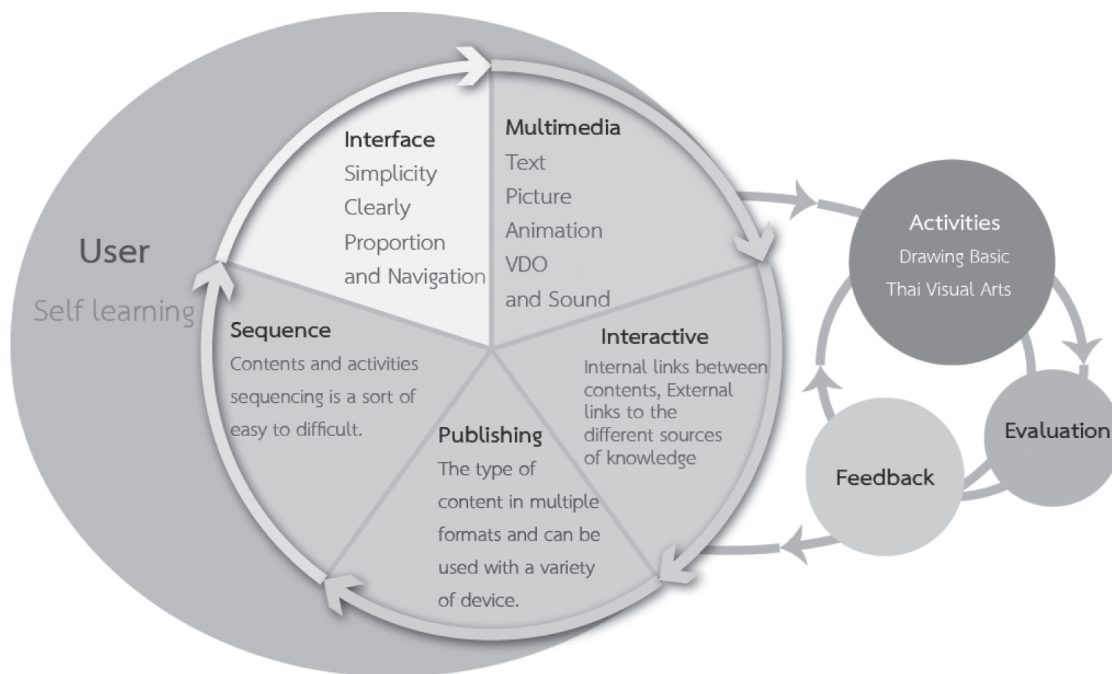T 2   represents post-test

Figure 1: The form of e-book of Principle of Thai Visual Arts

Figure 1 presents the relation of Component 1 is users, and Component 2 is e-book content which is consist of interface, multimedia, interactive, sequence, and publishing, Component 3 is consist of activities, evaluation, and feedback of e-book for Principle of Thai Visual Arts.

Component 1 Users: Users of e-book of Principle of Visual Arts subject aim to learn theory of Thai drawings such as concepts, history, and step-by-step drawing practices. Users can review their knowledge at any time.

Therefore, e-books in Thai Visual Arts subject is used as the main pillar. Students learn from e- books of Thai Visual Arts subject in the classes and then proceeded to practice in the e-book. Teachers will only guide the student if the student has a problem, scoring, and recommendations. E-book of Thai Visual Arts subject is media supplements if students keen to learn and self review outside the classrooms.

Component 2 contents of e-book of Thai Visual Arts subject: these elements are essential in the e-book for principle of Thai Visual Arts subject. It enables students to learn more effectively. It is consist of following components:

Interface: Users employ it to contact and control elements of e-books for Principle of Thai Visual Arts subject. It is easy to use, attracts users. Design of user interface shall be legible with guidance that helps students to make decision. It may include codes, screen, headings, sub-heading, colors, graphic sym-

bols, and time-spent indicator.

Guidance assistsstudents toobtain easy and convenient uses such as screen changing and menu selecting (Prayad Jiraworapong, 2006). Screen design of e-bookshould be laid to be similar to documents or textbooks. As students are familiar with regular books, screen should be designedin the way similar to regular books. Students can learn how to use and use it immediately.

Multimedia is a part that studentscan learn the material through various channels in many formats. Content displayed using texts that students to read similar to textbooks with still images, which shows pictures of various Thai drawings. Thesedrawings are compared to natural images or source images of each Thai drawing. It includesstep-by-step drawing from writing up, forming, to complete Thai drawings. It presents with still pictures with black and white scale particularlydrawing process, black and white scale simply presents the structure and designs clearly and uncomplicated.

The animation in video format is to demonstrate a step pattern of Thai drawingwith narration. Students can control speed and select playback of videos. This allows students to customize learning and practicing of drawing on demand and can learn unlimited over time.

Interactive: Students can interact through learning control, self knowledge gaining, feedback and reinforcement to students' actions. It is the learning motivating principleof Malone. By this theory, there are 4 main factors that cause motivation; challenge, imagination, curiosity, and feeling of control over the lesson. (Wichit Teppasit, 2007). Interaction is to links content to external knowledge sources such as website and to link between related content within lessons.

Sequencing: It is divided into 2 parts;sequencing of e-book content, and sequencing of lessons as of Figure 2.

1. Sequence of e-books is like a regular book, which is;

1.1 Front covers; front cover, inner cover, preface, and content

1.2 Content; lessons and exercises

1.3 Back cover; bibliography and back cover

2. Lesson sequencing is a sort of easy to difficult as the content hierarchy. The principles of Thai drawings will begin with straightforward geometric shapes such as "Kra Jang Fan Pla" pattern, "Kra Jang Ta Oi" pattern. Following patterns then become more complicate such as "Kanok Sam Tua" pattern. Finally students have to apply all combined knowledge and skills to design new patterns.

In teaching of a subject with practices, student shall start from simple practices until they are more skillful, then practice with more difficult lessons.

Publishing: electronic books can be published and applied to readers through various e-book reading programs and must be able to print intoregular book form or regular documents.Current popular formats of e-books are such as PDF (portable document format

Component 3 isconsist of activities, evaluation and feedback.

Activities: They are related to the content that the students have learned. Activitiesare forms of drawing exercise, which will be at the end of each lesson.

Thai drawing exercises will ask students to practice on regular paper because writing by mouse or mouse penis difficult for tablet or even cannot be done on a mobile phone.

Evaluation: It is to evaluate of learning achievement whether students can learn and draw in accordance to its principles and patterns. Every lessons are evaluated.

Feedback: Students can send any comments, questions, problems encountered during learning with e-books of Principle of Thai Visual Arts subject to instructors via e-mail.Instructors will provide students required information via e-mail as well.

2. Comparison of pre- and post- learning achievement of Thai Visual Arts subject

Comparison of pre- and post- learning achievement of Thai Visual Arts subject by using e-book format is shown in Table 2.

Pre- and post- learning achievement of Thai Visual Arts subject by using e-book format is shown in Table 2. Students have higher average post-learning achievement score than pre-learning score, statistically significant at p=0.01.

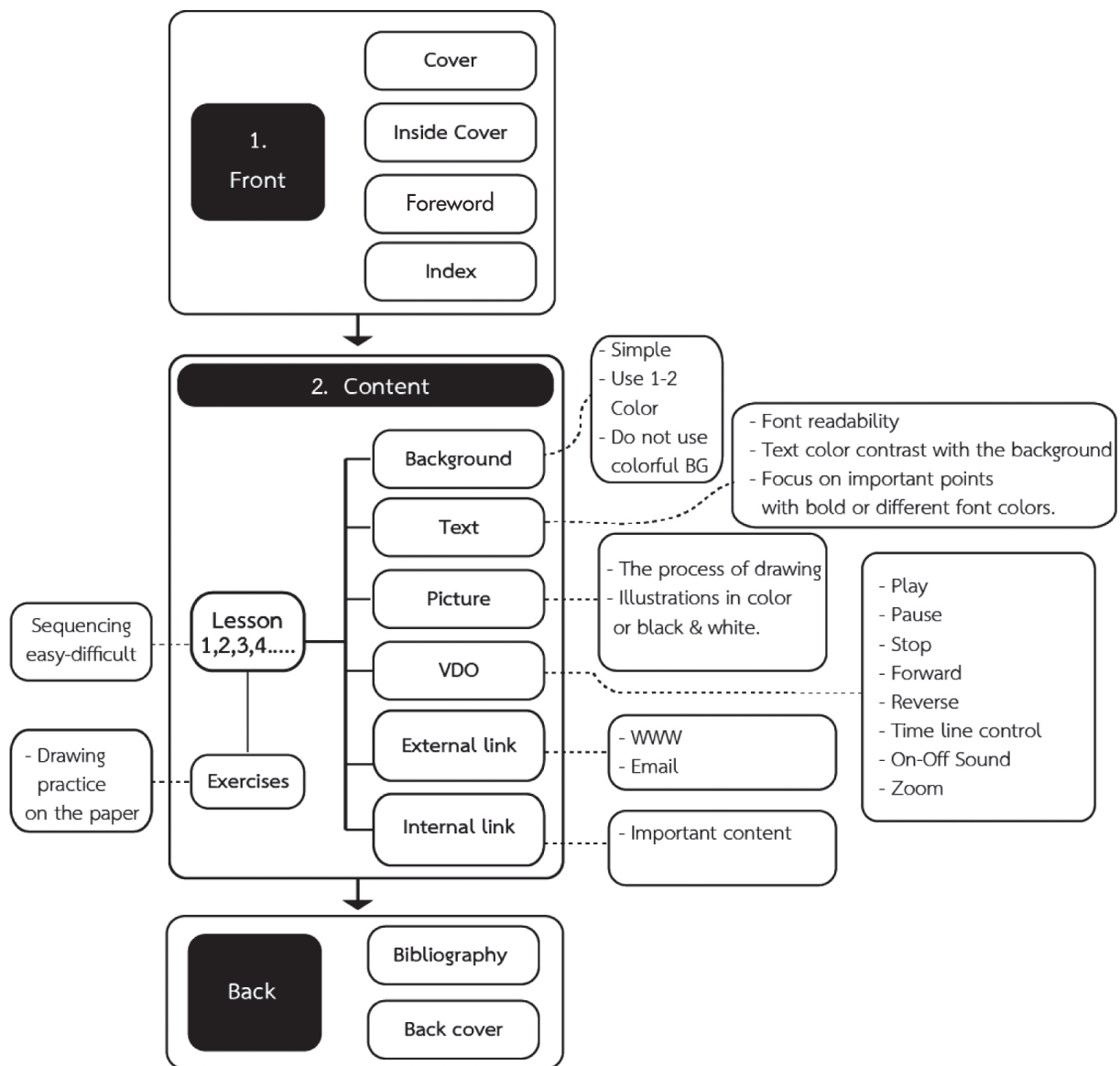**3. Satisfaction study on e-books for Principle of Thai Visual Arts subject**

Figure 2: Sequencing of e-book of Principle of Thai Visual Arts subject

Table 2.

Evaluation	Achievement score analysis				
	N	x̄	S.D.	t-test	sig
Pre-learning (80 pts)	32	30.03	2.17	2.28*	0.00
Post-learning (80 pts)	32	60.87	3.51		

* Statistical significant at p=0.01

Average satisfaction score e-books for Principle of Thai Visual Arts subject is 4.82. It is in the criterion "The most".

Discussion

1. Development of e-book for Principle of Thai Visual Arts subject

Researcher has learned and analyzed documents and theories related to forms and production of regular books and e-books, teaching principles and content of Principle of Thai Visual Arts to create a prototype and then discussed with experts by arranging focus group discussion. The results of focus group discussion were brought to improve and to create an e-book format for Principle of Thai Visual Arts subject. The e-book for Principle of Thai Visual Arts employed Duke E-Book Advocacy (Meghan Gamsby and Other, 2011). The clear elements are; 1) Reading, which supports various reading and learning devices and can be scheduled, 2) Conceptualization and discovery, e-books should be easily searchable and linked with multiple formats, 3) Theory formation, it supports information searching from various sources, 4) Documenting and synthesizing, it allows copying and paste texts to another document, 5) Collaboration, it supports communication and knowledge networking, 6) Publishing and disseminating, readers can read e-books in multiple formats. Researcher has embraced these elements applied to Tyler's Learning Theory Tyler (Tylor, 1950) that requires continuous learning and contents. As for contents of Thai Visual Arts subject, students have to learn continuously either theory or practices to memorize and practice to meet learning objectives. It presents a range of content in order of difficulty from easy to hard, which matches the content of Principle of Thai Visual Arts subject. The content is arranged from simple to complicate patterns such as Kra Jang Fan Pla pattern to more complicate Kanok pattern. Students learn consecutively both theoretical and practical skills. Learning of Thai Visual Arts is integrated with information technology for learning and teaching. It allows students to learn through multimedia, where students can control and also find a variety of learning resources, in accordance with Thanakorn Wangpitakwong (online: 2014). He suggested that the application of ICT in learning helps promote the concept of anytime and lifelong student-centered learning. The implementation should be initiated in a side of institutions and students.

Researcher has embraced these factors with the content of Principle of Thai Visual Artsand created a format of e-book for Principle of Thai Visual Arts. The e-book's principle of Baker (Baker, 1992) was employed as followings; 1) Analyze content, principle, and theory that determine the final objective, which must be defined in terms of cognition and applications. Content analysis, in addition to following the objectives of the subject, it must be suitable to students who are different and lessons should sorted from simple to complicate topics which influencethe proposed design. 2) Design the presentation by building the learning motivation. The e-book should be interesting designed,contains still images, animations, video, and audio. It will generate students' interest. Ages of students should be considered in design process as well. For example, design of e-books for Principle of Thai Visual Arts is for undergraduate students, appropriate design which allows interest, easy and efficient learning should be simple,clean and similar to regular books.It makes learning easy and students feel familiar with. Internal linkssuch as advicesor to feedbacks help students more clarity and familiar. Internal links, such as advices and feedbacks make students interact and participate in the learning processes. 3) All contents are integrated and linked together. Each topic can be linked to each other because each chapter has key words or images that are expanded or referred to others. For example, when presenting PrajamYaam pattern, it is linked to the original pattern, Kra Jang Ta Oi. 4) Develop and improve experimental errors to complete e-books for Principle

of Thai Visual Arts subject. 5) Test and evaluate the prototype, students can evaluate their learning by submitting their works to instructors to evaluate and provide recommendations. 6) Publish the e-book for Principle of Thai Visual Arts subjects in several forms such as PC format and tablet format. This process complies with Wipawee Wirawong (2013) who has studied about the development of e-book to encourage imagination of students in higher education.

2. Comparison pre- and post-learning achievement of Thai Visual Arts subject

The difference between learning achievement mean scores of pre- and post-learning by using e-book for Thai Visual Arts subject, the first one is higher than the latter one, which is significant statistically at $p=0.01$. Researcher has created the e-book format for Thai Visual Arts subject by employing aforementioned fundamental principles and theories. It has then undergone a focus group discussion by education technology experts, in the field of e-book production and Thai visual arts teaching. Their opinions were brought to improve and to create the e-book for Thai Visual Arts subject by using Baker's 6-stages of E-book Development (Baker, 1992).

The e-books for Principle of Thai Visual Arts subject are easy to use with very similar system to regular books, students thus became accustomed to using. Multimedia system in the e-books for the Thai Visual Arts subject helps students learn better. Linking knowledge in the e-book model of Principle of Visual Arts subject to external sources provides students knowledge they need. In accordance to Narong Seelom (2007), he noted that uses of proper images and animations can attract readers very well. In addition, linked knowledge in different segments of the book also provides students motivation to learn. The e-book for Principle of Thai Visual Arts subject promotes self-learning. As Scajer (Scajer, 1987, referred in Sunisa Sangkla, 2012) has described, he noted that self-learning is to develop their own learning and experience as well as planning capabilities and to evaluate learning activities, which enables students to learn more effectively.

3. Determination of satisfaction with e-books for Principle of Thai Visual Arts

Overall satisfaction of students to the e-book for Principle of Thai Visual Arts is 4.82, which is in "The Most" range. Researchers have designed the e-book for Principle of Thai Visual Art subject. Data obtained from undergraduate student assessment shown that they like simple, clean, easy to use design with feeling familiar. Describing contents by multimedia is crucial to help students learn better. The e-book on Thai Visual Arts subject can also be used with various devices including PC, tablets and mobile phones. These devices allow students quick and easy use at any time as required. Students could learn by the objectives and satisfaction of the e-book is range in "The most". Good (Good. 2000) noted that satisfaction is a result of the interest in such thing or attitudes of individual towards such thing that happens when a person successfully received the intended purpose.

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