The Design of the Blended Learning System via E-Media and Online Learning for the Asynchronous Learning: Case Study of Process Management Subject

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Abstract—Nowadays the asynchronous learning has granted the permission to the anywhere and anything learning via the technology and E-media which give the learner more convenient. This research is about the design of the blended and online learning for the asynchronous learning of the process management subject in order to create the prototype of this subject asynchronous learning which will create the easiness and increase capability in the learning. The pattern of learning is the integration between the in-class learning and online learning via the internet. This research is mainly focused on the online learning and the online learning can be divided into 5 parts which are virtual classroom, online content, collaboration, assessment and reference material. After the system design was finished, it was evaluated and tested by 5 experts in blended learning design and 10 students which the user's satisfaction level is good. The result is as good as the assumption so the system can be used in the process management subject for a real usage.

Keywords—Blended Learning, Asynchronous Learning, Design, Process Management.

I. INTRODUCTION AND PROBLEM STATEMENT

EDUCATION is the significant factor to improve the development of the human resource and also the nation. In the past, the education pattern of Thailand was focused on only the in-class education or the teacher center system which have so many constraints. Those leaded to the lack of development of Thailand's education and cannot develop the human resource of Thailand as the nation's plan. But nowadays, there is a breakthrough method of education which is the blended learning via e-media and online learning for the asynchronous learning as the mean to transfer knowledge via the e-media and online learning. And also add on to the in-class learning.

So this research, "The design the blended learning via e-media and online learning for the asynchronous learning: case study of process management subject", was proposed and aim to create the prototype of the new method of learning which can increase the mobility and efficiency of the teaching. The

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pattern of learning will be the integration between the in-class learning and online learning.

Online learning is the self-study learning pattern can be divided into 5 materials which are live events, online content, collaboration, assessment and reference material. Live event is the synchronous learning which will be based on the real event or the case study so the student can participate in the learning in the same time as the other student. This can be called the "Virtual Classroom". Online content is the learning which the student can individually learn by the readiness of each person. This can be practically called the "Interactive learning". Collaboration is the learning which the student and the teacher can interact to each other such as e-Mail, chat room, web blog, web board and etc. Assessment is the learning pattern which the teacher has to assess the improvement of the student continuously since the pre-assessment, self-paced evaluation and post-assessment in order to make a continuous improvement. Reference material is the learning pattern which the student have to access to the search engine in order to find the information and data such as the journal download and etc.

A. Research Objective

1. To design the blended learning via e-media and online learning for the asynchronous learning: case study of process management subject
2. To evaluate the user satisfaction of the blended learning via e-media and online learning for the asynchronous learning: case study of process management subject

B. Research Hypothesis

The design of the blended learning system via e-media and online learning for the asynchronous learning: case study of process management subject will be able to operate and received the "Good" level of satisfaction from the professionals and experts

H_0: $\mu \geq 3.51$

H_1: $\mu < 3.51$

By assuming, μ = the satisfaction of the professionals and normal users

C. Research Limitation

1. System Using Limitation can be divided into 8 processes which are

1.1 Home page – In order to show the information data and also news.

1.2 Video Conference – In order to view the live broadcast and watch the in-class learning video.

1.3 Forum – In order to post the comment and create the topic.

1.4 Online Lesson – For the online self-learning by the student.

1.5 Online Test – For pre-test and post-test by the student.

1.6 Class Textbook – For the students to download and study by themselves

1.7 Chat Room – For the intermediate chatting and asking the question

1.8 Searching – For finding the related information

2. Content Limitation

2.1 The content which related to the process management subject.

3. Population Limitation

3.1 5 professionals and expert in the designing of the blended learning system

3.2 10 normal users which are the students

D. Research Value

1. To get the blended learning via e-media and online learning for the asynchronous learning: case study of process management subject

2. To ease the blended learning system for the learning.

II. LITERATURE REVIEW

A. The Blended Learning System

From the idea of blending the learning technology and the real world working, it can be concluded that the blended learning is the learning system which is very flexible and aim to the management of learning through the good condition atmosphere. The atmosphere which the learners can study by themselves at home or elsewhere must be met. There is also the blended of the various strategy of learning in the learning system such as the learning process, learning pattern of the learner, the communication between teacher and learner, the communication between learner and learner, the communication between learner and the content and etc. The objective of this type of learning is to let the learner achieve the goal of the learning process in the different in the condition and need of each learner.

The definition of blended learning are varies considerably such as corporate blended learning could be a mixture of face-to-face instructor led and self-paced online learning [1] or include the use of mixed media in the definition [2]. The definition for blended courses that emerged from research workshops sponsored by the Sloan-Consortium are blended courses integrate online with face-to-face instruction in a planned, pedagogically valuable manner and do not just combine but trade-off face-to-face time with online activity or vice Versa.

There is a study that can be concluded that blended learning is not only an acceptable methodology but a transformative one for higher education [3]. There are also the other research added the comment that the online learning technology could transform learning [4] in their book on how people learn. There is a strongly support the view that the introduction of asynchronous learning networks to campus courses will be viewed as a critical breakthrough in improving learning [5] and blended learning can lead to a more learner-centered education environment [6].

On the other hand, there is also the negative research on the blended-learning system which are a course taught in all three modalities concluded that fully online was the best of all the approaches—better than blended and better than face-to-face [7]. There is no evidence show that blended learning improves any cognitive presence while exclusive ALN environments did show that evidence.

The demand of the technology and the change of technology changes over times. So the learning process and technology must improve continuously and also have to be a user-friendly system

B. E-Learning System

E-learning is often treated by users as a synonym of the online learning the very construction of which implies a fundamental relationship between e-learning practices and Web-based technologies like the Internet [8]. E-learning has been a largely under-utilized training and educational tool in the aged care industry despite the obvious advantages it would bring

III. RESEARCH METHODOLOGY

A. Research Population and Sample

Evaluate the satisfaction of the system by the purposive selected population which are5 experts in blended learning designand10 students.

B. Research Operation

There are 4 processes in the research operation which are data collection process, analyze and design process, system development process and evaluate process.

1. Data Collection Process

1.1. Study and collection of data via the journal and related research also include the literature review in order to the perfection of system design.

1.2. Collection of the content in the process management subject.

1.3. Collection of demand data of the blended learning system.

1.4. Study the process of the other process.

1.5. Study the information of the research tool.

2. Analyze and Design Process

2.1. Define the requirement of the system

2.1.1. System requirement

2.1.1.1. CPU speed is 2.8 GHz at least

2.1.1.2. Hard Disk is 150 GB at least

2.1.1.3. Operating System is Windows XP or higher

2.1.1.4. SQL Database management system

2.1.1.5. Adobe Dreamweaver is installed

2.1.2. System capability

2.1.1.1   System development as a web application

2.1.1.2   The system will be able to show the data to the user

2.1.1.3   Video conference will be able to broadcast the live in-class teaching.

2.1.1.4   Forum will be able to post the message into the web board.

2.1.1.5   Online Lesson will be able to allow the learning to have a self-study.

2.1.1.6   Online Test will be able to let the learner to do the pre-test and post-test

2.1.1.7   Class Textbook will allow the learner to download the text book in soft file to use in the in-class learning.

2.1.1.8   Chat Room will be able to send and receive the real-time chat message.

2.1.1.9   Searching will allow the learner to search for the data via the search bar.

2.2   Structure design and data presentation

2.2.1 Use Case Diagram will show the activities in the related domain between the activities and the relationship of the activities and the others. There will be 2 parties which are the user and the admin. There are also 8 sub-functions which are 1.homepage 2.video conference3.forum4.online lesson 5.online test6.class textbook7.chat room8.searching

2.2.2 Sequence Diagram which will simulate the overview picture in the system and will describe the process of designing the blended learning via e-media and online learning.

3.   System Development Process

The system is developed by the Adobe Photoshop, Dreamweaver and database management program (MySQL). The system will use the Adobe Photoshop to design and edit the picture file and use Google Chrome as a web browser to initiate the system.

4.   Evaluate Process

In the testing and evaluating process, 5 the professional and experts in the designing of blended learning and 10 normal users were the population. The testing and evaluation process can be divided into 4 parts

4.1 Functional Requirement Test

4.2 Function Test

4.3 Usability Test

4.4 Security Test

In the evaluate process, the researcher has set the range of the score in the evaluation form into 5 range as the Table I.

TABLE I
RANGE OF SCORE

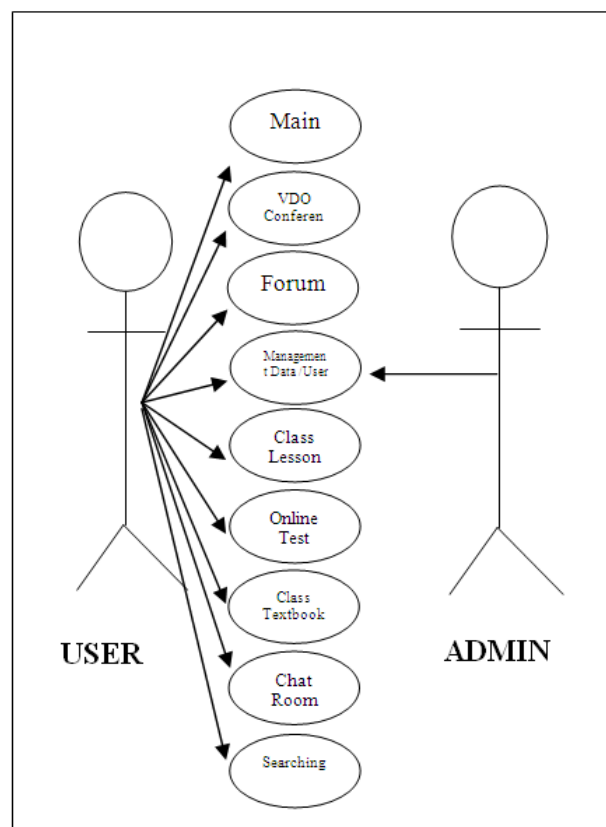| Score	Meaning
4.51 – 5.00	The develop system has a very good quality
3.51 – 4.50	The develop system has a good quality
2.51 – 3.50	The develop system has a moderate quality
1.51 – 2.50	The develop system has a low quality
1.00 – 1.50	The develop system has a very low quality

Fig. 1 Use Case Diagram

C. Statistics Tools in Analyzing the Data

Mean is the sum of the data from the evaluation process and divided by the number of the sample as (1)

$$\overline{X} = \frac{\sum x}{N} \qquad (1)$$

Assuming

$\overline{X}$ =   Mean of the evaluation

$\sum X$ =   Sum of the evaluation result

N =   Number of the normal user

Standard Deviation is the value which shows how much variation exists from the average as (2)

$$S.D. = \frac{\sqrt{\sum(X-\overline{X})^2}}{N} \qquad (2)$$

Assuming

S.D.   =   Standard Deviation

X =   Result of the evaluation

$\overline{X}$ =   Mean of the evaluation

N =   Number of the normal user

IV.   RESEARCH RESULT

In this part the research will discuss about 2 issues of the design of the blended learning system via e-media and online learning for the asynchronous learning: case study of process

management subject which are the result of system development and result of the system satisfaction.

A. Result of System Development

The design and development as a web application use PHP language and MySQL as a database management system. The main page of the program is shown below as Fig. 2 and the user interface of the program was shown below.
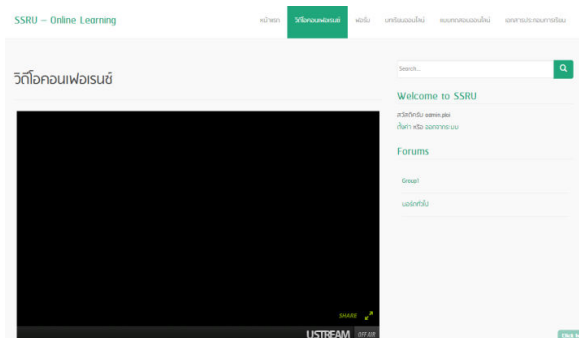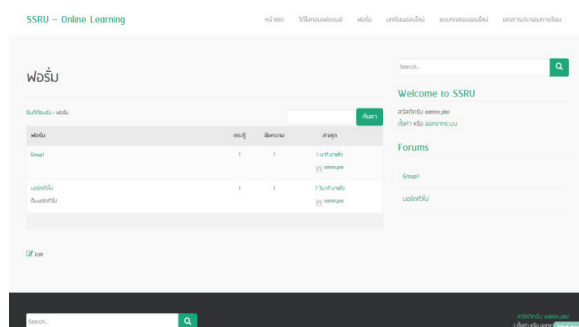

Fig. 2 Main page

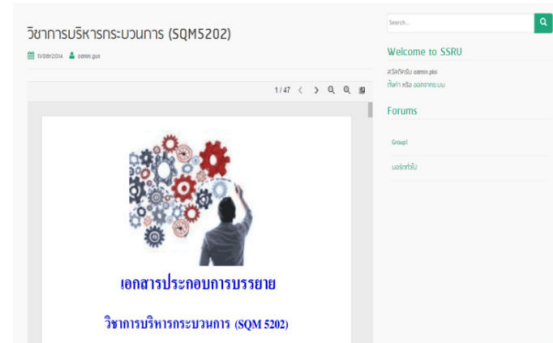Fig. 3 Video Conference Page
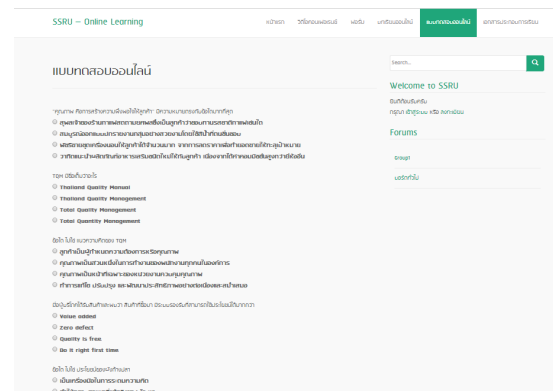

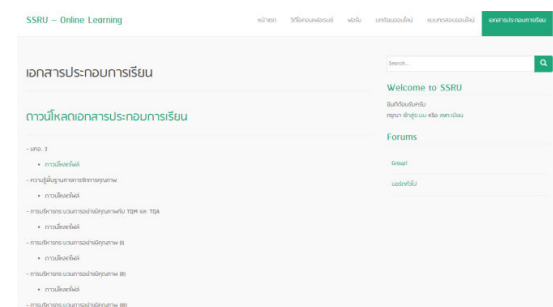Fig. 4 Forum Page

Fig. 5 Class Lesson Page

Fig. 6 Online Test Page
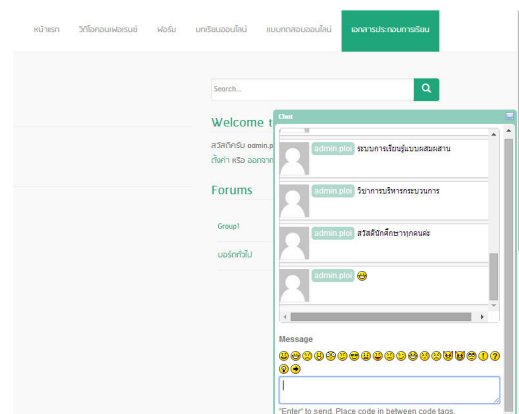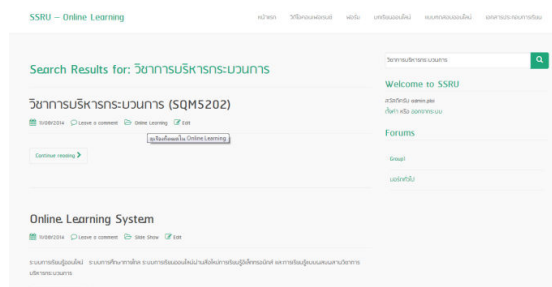

Fig. 7 Class Textbook Page

Fig. 8 Chat Room Page

Fig. 9 Searching Page

B. Result of the System Satisfaction

The design of the blended learning system via e-media and online learning for the asynchronous learning: case study of process management subject was received the testing and evaluation by 5 professionals and 10 normal users. There are 4aspects which were evaluated and the Usage of the system received the very good score, 4.53 out of 5. While the others, the system performance match with the user need, the accuracy of the system and the security of the system received the good score which are 4.33, 4.40 and 4.13 respectively.

TABLE II
THE TABLE OF EVALUATION RESULT

List of Evaluation	Result		
	$\overline{X}$	SD	Range
1. System performance match with the user need	4.33	0.62	Good
2. Accuracy of the system	4.40	0.63	Good
3. Usage of the system	4.53	0.52	Very Good
4. Security of the system	4.13	0.74	Good
Overall	4.35	0.17	Good

V. CONCLUSION

The conclusion of the result evaluation of the system is "Good". So the result and the hypothesis that the design of the blended learning system via e-media and online learning for the asynchronous learning: case study of process management subject is able to adopt to use in the real world.

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