Using Multi-view to Identify Factors that Affect their Use in Electronic Learning Course

Sasalak Tongkaw, Chothitam Tarnrak, and Jaksit Olarikchat
Program Computer, Faculty of Science and Technology
Songkhla Rajabhat University
Songkhla, Thailand
{sasalak.to,chothitam.ta,jaksit.ol}@skru.ac.th

Abstract—The important factors that affect Learning Management System (LMS) implementation by employing the theory of Multi-view 2 were studied. These can be used as a tool to analyze the problems of using e-learning in teaching and learning. The case study used the fundamental course named Information Technology for Life. Quantitative and qualitative research methods were used to answer the research question. Data was collected by following the Multi-view 2 framework representing the results in three dimensions: (i) technical perspective from a group of technicians, (ii) organizational perspective from administrators, and (iii) people perspective from a group of teachers and students. Results of the research could play an important role to support a decision of education leaders in developing information system plans, and to solve problems that occurred in learning systems in the educational organizations.

Keywords— Multi-view; e-learning; Multi perspective; Moodle;

I. INTRODUCTION

Learning through online systems plays an important role in higher education today. However, developing information systems in terms of online services require other developing aspects as well, for example, education developing, skill developing in terms of supporting collaborative learning in and out classroom setting. This research studies the obstacles of e-learning by using Multi-view 2 theory to plan and find out the problem in real situation for sustainable developing information systems. The key finding may support the decision making of the education manager in their organization. This research focused on Moodle, the Learning Management System. Today, e-learning has been used in many subjects in many universities including Songkhla Rajabhat University. E-learning in this university has been used as a tool to support in many subjects in and out classroom setting. To increase the performance of using e-learning, creator and designer need to be cooperated and referred to creator group, maintainer group, and user group. E-learning need to be designed to be suitable for each particular university environment. This paper describes the factors that lead the user to use e-learning in effective ways, the problem that affects the e-learning used. Our results confirmed the Multi-view theory, which tried to explain the overall affecting factors in the organization.

II. OBJECTIVE

This research aimed to (i) study factors that affect student inspiration in using e-learning in Songkhla Rajabhat University, (ii) study the problems that may be the obstacles of the e-learning use and finally, (ii) suggest the quality improvement of the e-learning.

III. CONCEPTUAL FRAMEWORK

E-learning means online learning with learning resources in electronic form and learner uses many electronic devices to achieve it. E-learning system includes mobile learning, virtual classroom, and learning management system (LMS). Multi-view in this research means the tool for analyzing information system which involved human and technology. This research used Multi-view 2 as a conceptual framework to analyze data by considering stakeholder context. The conceptual framework was created by Multi-view for developing e-learning system, that deeply supported developer in terms of understand the way to design, and whole information system situation. However, most of the system designs lack of considering all parts at the same time. This concept was similar to Multi perspective theory which contains technical perspective (T), Organizational or social perspective (O), and Personal or individual perspective (P). Multi-view 2 is a good choice for analyzing information system in various problems, especially, designing e-learning systems. As seen in Fig. 1, Multi-view 2 needs to consider organization structure and to understand their own structure and operation at the same time. Multi-view 2’s structure composed of four main issues including: organization analysis, socio-technical analysis, Information System format and software development. Those four issues need to consider together.
through mediation factors. Although Multi-view 2 could work efficiently in this research in terms of drawing the conceptual design of e-learning, the researcher combined Multi-view 2 with Multi perspective framework to describe the result from qualitative and quantitative data in the same issue to clarify the research questions.

Fig. 1. Multi-view 2 Framework

IV. RESEARCH METHODOLOGY

The research used a mixed method to study positive and negative aspects which affect e-learning employment today. The boundary of research covered the e-learning in Songkhla Rajabhat University called Moodle. The outcome of this research could be used to support someway of the solutions in this real situation. This research suggested the new idea to combine the theories of Multi perspective and Multi-view framework to develop information system framework in the case of e-learning problem. Template Analysis introduced by King [2] was used for analyse the data which collected from three groups of stakeholder perspectives. The results of this research will describe mainly in qualitative form and support by quantitative data in some aspects.

V. RESULTS & DISCUSSIONS

A. Results

The student about 48% agreed that this system has no specific problem about user interface designed, however, they still had some problems about accessing to the server. Also, they had the problem about login account and the account security. They curtained at high level in some problems. Reviews of the student satisfied with Moodle, generally, are moderate, except that the efficiency of the system and the university benefit in terms of organization participations are still high. Students satisfied with the support and resources in the learning class, almost all at the high levels, including system modules, interaction with multimedia, flexibility and convenience, connectivity between users, and others. However, the link of video inside the system is in moderate level. This is because the use of video within Moodle cannot be done efficiently. The actual use in teaching is very low, so that students cannot comments at this point.

Teachers had comments about many issues such as the design, functionality and design of the user interface of the virtual classroom system. The font size and the font color of the lessons are not quite clear and are difficult to read. Including, the downloading of the lessons is difficult. Moreover, it also limits the size of the data file to upload as well.

Most teachers were satisfied with the general nature of the system in a virtual classroom and they were satisfied with the support and resources in the learning class, virtual classroom system, generally at a high level.

Moodle support technicians commented that they have trouble finding technical user manual in Thai that affects the efficient maintenance of the system. They could not fix bugs on some points. There also have been some problems of the system itself, such as those from Domain Name Server. The system also does not follow the order of its processes and there is no backup plan amendments. The content migrations of the lesson also have a problem with the different file formats because the file format is not compatible even the Moodle support technicians tried to make it compatible, it also was low compatibility between new and old data file format. This consideration is at high level of recommendation.

Moodle support technicians are satisfied with the appearance of the highest level in scope and functionality; on the other side, image, readability, reliability, use of color, and navigation are at high level.

Administrators have the satisfaction of learning support and resource support at high level, which is flexibility and convenience of learning, video library service as well as from external links.

B. Discussions

The analysis of organization or social enterprise, Organizational or Social perspective, is to analyze the physical aspect of teaching within virtual classrooms course. Information Technology for Life which David Jane [3] describes. The activity is related to better understand the information needs of each organization. Research found that Songkhla Rajabhat University takes into account the needs of users with regard to the proper and intended use of the system and virtual classroom course, to aid teaching. When analyzing the overall most executive knowledge, the reasons for using this virtual classroom can be trained, although there is a problem in some active way.

The technical analysis of the socio-technical system analysis is the viewpoint of the organizational or social perspective (O) as well as the design, taking into account information such as sociology, regardless of user-oriented society, the actual applications in real (Real situation); the active effective system, the administrator account and password security systems, the results show that most of comments are in very good sign, and taking into account the
benefits to be gained for the students and a lot of satisfaction to the faculty and students.

Information system modeling is a technical perspective (T) to design and present technical information system, for example, object-oriented design, diagram or writing activities within the organization. The research suggested that the system should be designed taking into account of the warning messages about the system, screen design provides a consistent, easy to read design, use of color, the navigate to suit, the required framework and function and the focus on ease of use and access to inside information. To save time, the system must work together with multimedia upon flexibility and convenience. You should have the tools or modules for communication between learners and instructors. The compatibility with Web 2.0 Application contains links to other links, and should take into account the security of the data. Use the video, Non External Links can store more data and interact immediately. By resources should support for undergraduate students to meet the demand.

Software development is a technical perspective (T) as a means of programming by computer scientist to be involved with the design of the hardware, software and communication technologies. The interior design program will involve the design function and data structures throughout the class and object-oriented programming models. In order to make the program work, the design must relate to the user. The research found that the development of a virtual classroom to be reckoned with many factors. Those including the problem with the database of system capacity should reach quality and credibility of the program. Features and benefits add content creation could increase the visibility of the student quiz. Moreover, enhanced tools for creating and evaluation should be considered.

Mediator is a personal or individual perspective (P), the binder relating the flower to the rock on the computer system in the human social reality. Sometimes, the date will come with fear to use [4], particularly under the views of the staff, so it is necessary to develop information systems. This research found that users have been trained thoroughly, and if there are any problems, users are eager to solve many problems. However, the reference to the work is not clear and practices of each of the mismatch. It also does not help enough. It should support a link among users. There are needs to manage users’ data, so that a student can use multiple concurrent users.

C. Suggestions

This research shows that the introduction of Multi-view 2 as a conceptual framework for analyzing information systems are possible and can lead to conclusions that this can be utilized in planning the development of a virtual classroom. Actually, research continues in the future, which considers applying to the use of Multi-view 2 format development, systems analysis, information systems, such as online or other systems in the organization. Also, it will develop further by modifying other basic courses. This may provide a different conclusion, and the results have come back again to improve the analysis of e-learning in the future.

Acknowledgment

This work is mainly supported by Faculty of Science and Technology, Songkhla Rajabhat University.

References