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A proposed model of problem-based learning on social media in cooperation with searching technique to enhance critical thinking of undergraduate students

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Abstract

This research aimed at proposing a model of problem-based learning (PBL) on social media in cooperation with searching technique to enhance critical thinking of undergraduate students. The model was developed based on the review of literature, the expert's interview and evaluated by 5 experts. The results indicated that the model had 6 elements and the process of PBL model consisted of 5 steps. The overall model evaluation scores were suitable.

*Keywords:*Problem-Based Learning, social media, Searching Technique, Critical Thinking

1. Introduction

Nowadays, modern technologies are integrated with the instructional design models which aim to promote and facilitate learning for people of all ages that can solve the problems regarding place and time limitation for studying in order to become learning societies in 21st century and to learn by focusing on giving an opportunity for all students to create their knowledge, meaningful learning and critical thinking as consistent with the recommendations of learning skills development in 21st century which said that the learning skills development of 21st century is to

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learn for enhancing knowledge proficiencies, problem solving and critical skills to achieve the efficiency of learning in current globalization. (Bellanca, 2010) In the framework of learning in 21st century is also concerned with critical thinking skills, problem solving skills, skills of information and technology which students will be given to question an important issues that lead them to be the best for solving problem in different situations appropriately, also can analyze, synthesize and link data orderly. Moreover, the students can interpret and summarize based on reliable analysis as well as reasonable feedback on the basis of experiences and learning process. Developing learners is needed to use technology as a tool to do research, organize, evaluate and communicate information. The use of technology in communication and networking includes access to social media appropriately. (Jame Bellanca and Ron Brandit, 2010)

Critical Thinking is a critical skill for learning in the 21st century. The instructor is needed to seek ways to design learning to the learners whether it is during any given age to practice critical thinking that occurs at any moment of interaction between the instructor and students especially in a time when casual. The critical thinking will come from audience's perception or rendition and depends on an individual understanding of various aspects as well as age and experiences. In addition, critical thinking must be happened unconsciously as a student's daily life until it is habitual which is known as the critical thinking skills (Ennis 1985; Wijarn Panich, 2012). It is seen that the critical thinking requires knowledge arising from the experiences of the learners. Thus, learning activities by using a problem-based learning which links the experiences of learning contributes the learners to develop their critical thinking skills.(Wijarn Panich, 2012; Worapoj Wongkitrungruang and Atip Jittalerk, 2011)

The important characteristic of the problem-based learning is focusing on student-cantered of learning in a small group classes and comes from knowledge searching to use for solving problems that have been assigned. The process of learning will run systemically step by step, acquiring up-to-date knowledge and it can be applied for student in the real life which is efficient for teaching and also it is unlimited to disseminate the knowledge into others sciences. Problem-based learning usage is a strategy that encourages students to develop critical thinking skills and student is able to apply knowledge to solve problems effectively. (Barrows and Tamblyn, 1980; Delisle, 1997; Hmelo and Evensen, 2000) Therefore, it is very necessary to develop critical thinking skills for making the learning skills to students.

2. Methodology

This research was divided into 2 phases which are (1) The study that related to theories, research and experts' opinion, (2) Evaluation on the proposed model.

2.1 Phase 1 : The study that related to theories, research, and experts' opinion.

The study in this phase included the study of theories and research on the problem-based learning, social media, searching technique and critical thinking, to be used as guidelines in determining learning processes and components of the model. The model will be designed after documentation review, and then the interview will be conducted to get an opinion towards the model from five experts.

2.2 Phase 2 : Evaluation on the proposed model.

After gathering all of information and modifying the model, three educational technology experts and two problem-based learning experts were selected to evaluate the model by using five scales model evaluation form. The expert selection criteria consisted of (1) the experts must have more than 3 years of experiences in the educational technology / problem-based learning field, (2) the experts must have a related work in educational technology / problem-based learning field, and (3) the experts must have experiences in designing or teaching with undergraduate students.

3. Results

3.1 Phase 1 : Results of the study that related to theories, research, and experts' opinion.

From the study that related to documents, it was found that the problem-based learning had five main steps (Arends, 2001;Kreger, 1998; NapasornSwaddiboonya, 2011)The results indicated that the learning process of the model consisted of five steps as follows:

1) Presentation of the problem : Instructor will determine the heading of the problem situation. By giving each group a situation where the instructor assigned to the destination. Which the students will learn a concept or content before. Students will use Facebook as a tool to present the problem situation.

2) Understanding the problem : When the students get an idea about the problem. Learners within the group reviews to help the students in understanding. By generating ideas online Comment Facebook in exchange and mutual understanding.

3) Problem analysis: Learners within a group share analysis to distinguish the data and information sharing. to find ideas and theories to support it is used as a tool to analyze the problem GroupZap.

4) Study and Implementation : Helping learners research In order to obtain the appropriate information and reasonable solutions using Diigo to save the bookmark to search the Web. If you find information that is incomplete or inadequate.The students to research information again.

5) Collection and Summary: Learners in collaborative problem solving. And abstract concepts To get the right data and accurate. Then be saved into the beta docs.

From the study that related to the documents and opinion of the experts, found that the component of the model consisted of six core components as follows:

1) Instructor: Teachers are the guiding observing the behaviour of learners to help the students understand.

2) Learner: Students enrolled in technology activities. The undergraduate students

3) Content: Content that related to technological activities includes exhibitions Puppet fabrication and field trips a lecture or practical.

4) Social Media: Interaction between the instructor and the students will contribute the learners to share knowledge and opinions. The tools that help learners for communication and learning on social media include, Facebook, Comment Facebook, GroupZap, Diigo and Beta Docs.

5) Searching: The searching is a tool helping to facilitate the learner to search information which is the process of using problem-based learning.

6) Evaluation: The evaluation by instructors consists of measuring critical thinking by using pre-test and post-test.

3.2 Phase 2: Evaluation on the proposed model.

The evaluation scores of the proposed model from three educational technology experts and two problem-based learning experts were summarized in Table 1.

Table 1: Experts' evaluation scores of the proposed model

	Overall	Objective of the Model	Uses of Concepts and Principle	Components of Model	Process of Learning	Tools Usage
Mean $(X, ^-)$	4.20	4.60	4.20	4.00	3.80	4.40
Interpretation	Very Suitable	Most Suitable	Very Suitable	Very Suitable	Very Suitable	Very Suitable

Note: 5.0 - 4.5 = Most Suitable, 4.49 – 3.5= Very Suitable, 3.49 – 2.5= Suitable, 2.49 – 1.5 = Less Suitable, 1.49 - 1.0 = Not Suitable

From Table 1, the proposed model overall score was at a "Very Suitable" level1, the model procedure indicated that most of the experts strongly agreed with using problem-based learning method to enhance critical thinking, and the experts believed that this proposed model can be used in a real context. The illustration of the proposed model was shown in Appendix A.

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Appendix A. The Illustration of the proposed model