

Designing Framework of Constructivist Web-based Learning Environment to Enhance Creative Thinking on Topic E-R Diagram for Higher Education Student

Nisachol POLJORHOR ^a, Charuni SAMAT ^{b*}

^a*Master degree student of Educational Technology, Faculty of Education, Khon Kaen University, Thailand*

^b*Assistant Professor of Computer Education, Faculty of Education, Khon Kaen University, Thailand*

thaibannok@hotmail.com

Abstract: From the context of the global expansion of the technology industry has made today's competitive labor market is relatively high. Creative thinking is an essential skill in the 21st century but nature of teaching is also unfavorable for the students to learn the content. Students will continue to focus on memorization and will not be able to apply this knowledge to the real problems. This paper presents the implemented open learning environments (OLEs) to design web-based learning environment to enhance creative thinking. The target group consisted of 15 undergraduate students, faculty of education, Khon Kaen University. The research procedures were as followings: 1) to examine the principles and theories regarding constructivism, cognitivism, creative thinking, web-based learning and open learning environments, 2) to synthesize designing framework of web-based learning environment to enhance creative thinking, 3) to design and development web-based learning environment to enhance creative thinking. The result shows that six components to design web-based learning environment for effective were: problem base, knowledge bank, creative thinking laboratory, counseling center, scaffolding, and social collaboration.

Keywords: Creative thinking, Learning environment, Web-based learning, Database design

1. Introduction

Thailand has changed the social context of a world that looks expansion of the technology services industry. The political environment in the world has reduced the tension caused by political polarization has become the key to open the door to turn to international competition, instead of accumulating weapons. To create a military and political power. Simultaneously, it has created a new world economic environment of the 21st century, the population is considered to be the most important resource in the competitive world of modern transactions. So the first thing is to hasten the development of a new generation of potential universal. And a good man as a social capital to raise our country to the international level. Here's a look at the competitiveness of the global society in the 21st century (Chompoo Kothirum, n.d.).

Changes in the context of the global expansion of the technology industry has made in today's competitive labor market is relatively high. Nature of graduate labor market needs have changed. Skills that enterprises want to have on a student. Being a trusted the job. The development of self-management, the ability to recognize and resolve interpersonal inspiration, motivation, creativity, discipline, morality, communication, leadership, etc. The Software House is a program or application software to the organization. or the like The customer needs are varied according to the nature of the organization. Which makes the development of such applications need to use creative thinking to design a lot. Especially in the Entity-Relation Diagram, database design using E-R Diagram will require thinking,

fluent in the use of symbols and the relations between the entity and the information of the assignment within the time limit has been. The results of the evaluation of the students who took summer internships and cooperative education company. Khon Kaen Soft Tech Co. found that the students' creativity to work in a fair to middling. When making assignments to the students, the students can't work properly. (Assessment of cooperative education students. Khon Kaen Soft Tech Co., 2013).

From the history and importance of the above. The researcher was interested to design a constructivist web-based learning environment to enhance creative thinking topic on E-R diagram for higher education students to be useful in the framework of environmental design learning the new system.

2. Theoretical framework

The theoretical framework was synthesized based on studying and analysis of principle theories, and related literature regarding design and development, cognitive theories, constructivist theories, the constructivist learning environment model, web-based learning, media attribution, media symbol system, and creative thinking. The theoretical framework shows five important theoretical foundations as follows: The theoretical framework shows four important theoretical foundations as follows: (1) Constructivist base, (2) Creative Thinking base, (3) Media and Technologies base, and (4) Contextual base.

3. Results

The designing framework of web-based learning environment was synthesized based on mentioned theoretical framework as following details:

3.1 Encouraging learners to balance intellectual and promote creative thinking

The encouraging learners to balance intellectual and promote creative thinking (1) Problem base to enhancing creative thinking.

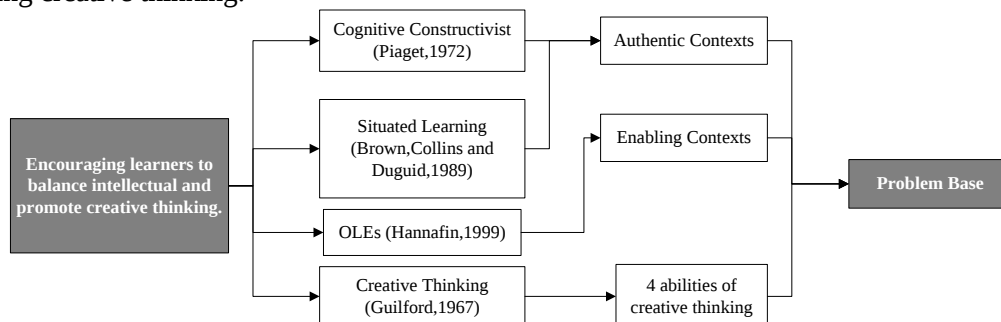


Figure 1. Theoretical Framework Designing Problem Base

3.2 Support and promote intellectual balance

The support for balance adjustment and creativity (2) Knowledge Bank.

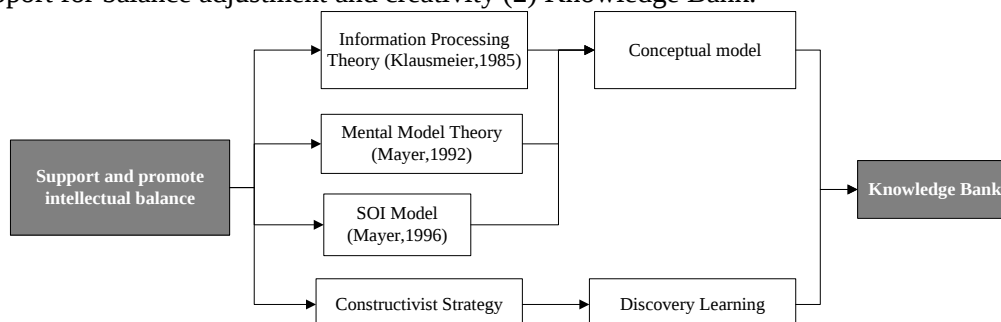


Figure 2. Theoretical Framework Designing Knowledge Bank

3.3 Promote creative thinking

The enhancement in constructing knowledge and creative thinking (3) Creative thinking laboratory and (4) Social Collaboration.

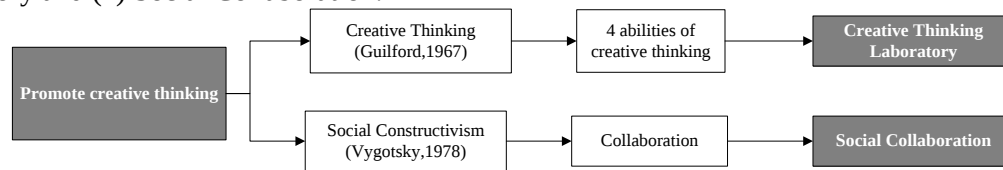


Figure 3. Theoretical Framework Designing Creative Thinking Laboratory and Social Collaboration

3.4 Help support knowledge creation and promotion creative thinking

A key element is the base of support. The basis of the Social Constructivism (Vygotsky, 1978), which will support students in problem solving. Counseling Center Guidance in solving problems for the students. Based on the Cognitive Apprenticeship (Brown and Collins, 1991).

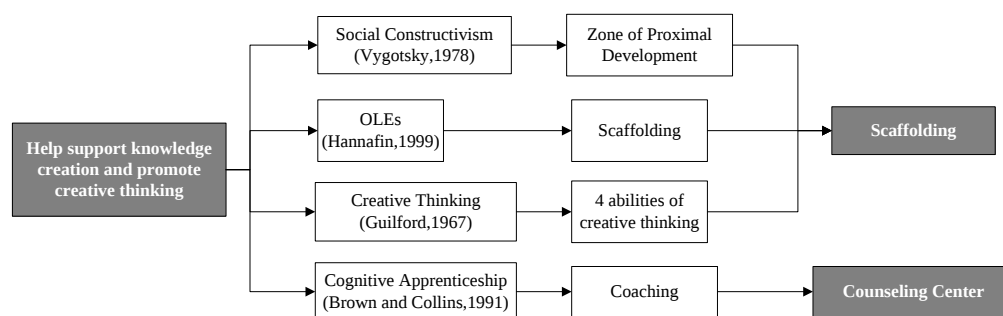


Figure 4. Theoretical Framework Designing Scaffolding and Social Counseling Center

4. Conclusions and Future Work

Designing framework of constructivist web-based learning environment to enhance creative thinking topic on E-R diagram for higher education students should take into account the context of the study subjects and media features. To conform to actual conditions in the present and can be developed in the future.

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