LEARNING MODEL ON PROJECT-BASED LEARNING TO ENHANCED CREATIVE THINKING SKILLS OF THE 21st CENTURY STUDENTS

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ABSTRACT

This paper presents the first phase of the development of learning model on Project-based Learning integrated with enhance Creative Thinking (PBLCT) through ICT-based learning. The research procedure was model research by Richey and Klein (2007). In this paper present the conceptual framework and the result of study expert’s opinion (In-depth interview). Learning model on Project-based Learning integrated with enhance Creative Thinking in accordance with the following model: 1) Project-based Learning, 2) Synectics, 3) ICT-based learning and 4) Context of Learning. The results of the analysis of the conceptual model of learning consisted of 6 components: 1) Learning Management System (LMS) 2) Collaboration and Communication tools 3) Learning contents, media and resources 4) Roles of learners and instructors 5) Project-based Learning and Synectics activities and 6) Assessment of Creative Thinking

KEYWORDS: Project-based Learning, Synectics, Learning Model, Enhance Creative Thinking, Learning Innovation Skills.

INTRODUCTION

In the twenty-first century, when a school or university, combining the entire framework with the necessary support systems, students are more engaged in the learning process and graduate better prepared to thrive in today’s global economy. Therefore, Instructors focus on providing opportunities across content areas and within the context of core knowledge instruction. Whenever, students must also learn the essential skills for success in today’s world. Learning and innovation skills are increasingly being recognized for students who are prepared for a more and more complex life and work environments in twenty-first century with focus on critical thinking, problem solving, creativity and innovation, communication and collaboration [1]. Therefore, in a study aimed to promote learning and innovation skills for students in higher education. Especially, there is an approach of ways to enhances creative thinking skills of students with too many methods. However, after to study and review of the journals and research related, we are interested in approach for enhances creative thinking skills with Project-based Learning and Synectics, for the studying and development of new learning model for the learning innovation skills
1) Project-based Learning

Project-based Learning is an innovative approach to learning that teaches a multitude of strategies critical for success in the twenty-first century [2] and a key strategy for creating independent thinkers and learners, creates opportunities for groups of students to investigate meaningful questions that require them to gather information and students learn to work in teams, potentiating their personality and bringing them closer to reality. The methodology arouses a spirit of investigation and innovation, creativity for the generation of new knowledge, productive thought, and motivation to learn and solve problems [3]. However, the principal objective of project-based education is to cultivate students’ creative thinking, which is perhaps the most difficult to achieve among all the attributes that university may provide for their students [4]. And the principle of Project-based Learning aims develop the students as let students build/create, let them learn and let them proud (see Figure 1) [5].

Therefore, students should fully prepare to approach these requirements in future employment, by developing fundamental creative thinking skills.
2) Synectics

In 1961, William Gordon developed a model for thinking creatively through the use of analogies or metaphors. Gordon’s premise was that creative people routinely use metaphoric thinking to support novel ways of looking at issues or problems [6]. Synectics has been successfully used in education to introduce students to difficult or unfamiliar concepts. However, Gordon believed identifying the subconscious processes and bringing them into conscious thought would not disrupt the creative process; in fact, he believed that doing so would enhance it.

Therefore, Synectics can be used in a wide variety of educational environments as well. Face-to-face, module-based, and distance education instructors alike can use the techniques to foster creative thinking and improve problem-solving skills among their students [7], in accordance with Synectics Model Web-Based Instruction can enhance creative thinking of learners [8] and Synectics is more demanding of the subject than brainstorming activity as the steps involved mean that the process is more complicated and requires more time and effort[9].

DESIGN AND METHODOLOGY

The research procedure was model research by Richey and Klein (2007) consisted of 3 phase 1) Model development 2) Model validation and 3) Model use [10]. However, some of this research concentrates only on one or two phase of design and development. Furthermore, in the development and use tools that can be used to support the teaching/learning process. The procedures are as follows:

Phase I Model development
1) To study, analyze, problem, theory and research related, Design conceptual framework, Study experts opinion (In-depth interview), Focus group interviews 7 experts (discussion) and Assessment a conceptual framework Learning model
2) Design and development a) design flow chart b) story board to audit by experts, c) assessment Item objective congruence (IOC) and d) develop Learning model

Phase II Model validation
1) To study a quality assessment of learning model
2) To measure learning and innovation skills
3) To study opinion (survey) students on learning model
4) To assessment oneself and friends

Phase III Model use
1) Propose, Revised, information obtained from studies in phase 2
2) Approve learning model by 5 experts

In the research of learning model, there is a tendency to combine the tasks of doing design and development and studying it.

RESULTS

This research to development of learning model on Project-based Learning integrated with enhance Creative Thinking (PBLCT) through ICT-based learning was aimed to promote learning and innovation skills for students in higher education. The research procedure was model research by Richey and Klein (2007). In this phase, process to develop a learning model such as design conceptual framework, study experts opinion (In-depth interview), Focus group interviews 7 experts (discussion), assessment a conceptual framework leaning model by experts.

The result of the design conceptual framework and study experts opinion (In-depth interview) in accordance with the following PBLCT model: 1) Project-based Learning, 2) Synectics, 3) ICT-based learning and 4) Context of Learning (see Figure 2), and analysis of the conceptual model of learning consisted of 6 components: 1) Learning Management System (LMS) 2) Collaboration and Communication Tools 3) Learning contents, media and resources 4) Roles of learners and instructors 5) Project-based Learning and Synectics activities and 6) Assessment of Creative thinking (see Figure 3)[11].
CONCLUSIONS AND DISCUSSION

In a study aimed to enhance creative thinking skills of the twenty-first century just go with it focus on the creativity and innovation, communication and collaboration of students. The design and development of learning model, we are interested in approach for enhances creative thinking skills with Project-based Learning and Synectics, for the studying and development of new learning model for the learning innovation skills and The research procedure was model research by Richey and Klein (2007).

The experts recommend that should to begin with explore tools and learning process to target first and created the tools or synthetic can add manually before the design conceptual framework the model. The result of the design conceptual framework and the components of learning model Project-based Learning integrated with enhance Creative Thinking (PBLCT) through ICT-based learning (See Figure 2, 3) However, many individual elements of the development of model learning and Synectics found that 3 steps of collaboration learning [12]: 1) pre-learning operation 2) learning operation that consisted of 3 steps 2.1) learners preparation, 2.2) learning step included large group activities; stimulation and brainstorming for motivation, notification of objectives, revision of previous knowledge, learning and presenting the lessons, voting for the project titles, guiding for learning, small group activities (setting project through voting, searching for information and brainstorming, creating works, presenting among small groups, discussion – revision and voting), large group discussion (small groups present to large group) and discussion, and voting for scores. 3) Assessment.
In summary project-based learning offers an engaging instructional method to make learners active constructors of knowledge [13] and helps not only increase thinking skills, but also promote concept integration, understanding basic of technology, commitment, good communication, teamwork and management skills, self learning leading to life-long learning [14].

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