

Development of Constructivist Flipped Classroom to Enhance Students' Creative Thinking for Designing Logo

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Abstract: The purposes of this study were as follows: 1) To design and development of constructivist flipped classroom to enhance student's creative thinking for designing logo, 2) To examine students' creative thinking, and 3) To examine study student's opinions. The target group of this research is grade 11 student of Pathumthep Witthayakarn School, high school in Thailand. The pre-experimental design, particularly with one shot case study was employed in this study. The research instruments were constructivist flipped classroom to enhance creative thinking on logo design with Adobe Illustrator CS6, creative thinking test form, and opinions survey form. The results revealed that: 1) The designing of constructivist flipped classroom consisted of the following components; (1) Problem Base (2) Resources (3) Creative Thinking Room (4) Collaboration (5) Scaffolding and (6) Coaching. 2) The creative thinking was found from the creative thinking test form ($\bar{X} = 31.59$ and S.D. = 1.67) that every learner passes the 70% criterion of the specific scores. 3) The students' opinion towards the constructivist flipped classroom was divided into 3 aspects. They were 1) the contents can be supported concept formation of the learners, 2) characteristic of constructivist flipped classroom was designed for helping learners to easily for learning about in classroom and out of the classroom, 3) the constructivist flipped classroom supported and encouraging learners to enhancing knowledge construction and creative thinking; fluency, flexibility, originality and elaboration.

Keywords: Constructivist Learning, Flipped Classroom, Creative Thinking

1. Introduction

A flipped classroom is a classroom that swaps the arrangement of knowledge imparting and knowledge internalization comparing to traditional classroom. In the flipped classroom, the roles of teachers and students have been changed and the class time should have a new plan. Information technology and task of learning construct an individuation and cooperative learning environment for learners to create new learning culture (Zhang, Wang & Zhang, 2012). Based on the analysis of literature of flipped classroom and some typical cases, we design and development of a flipped classroom based on constructivist learning theory. We also describe the challenges in the implementation of the flipped classroom teaching with learning environment. The paper provides an innovative way to reform teaching in Thailand high schools.

Flipped Learning is particularly well-suited into school settings for a variety of reasons. The in-class discussion and enrichment activities allowed by moving content delivery outside of class time provide opportunities for students to develop vital skills needed in the 21st century, focus on creative thinking (Guilford, 1967) consisted of 4 abilities of thinking as follows: Fluency, Flexibility, Originality and Elaboration.

This research was aimed to design and development of constructivist flipped classroom to enhance student's creative thinking for designing logo from analysis of theoretical framework and design framework for enhanced creative thinking in order to obtain the basis for constructing the appropriate and efficient learning environment for the learners. This will lead to the guideline for design and develop the learning environment that can encourage the learners to construct knowledge and support creative thinking for the learners.

2. Methodology

2.1 The target group of this study

The target group of this research is Grade 7 student of Pathumthep Witthayakarn School in Thailand.

2.2 Research Design




The pre-experimental design particularly a one-shot case study was employed.




3. Research results

The research finding showed as following details:

3.1 The constructivist flipped classroom to enhance student's creative thinking.

The constructivist flipped classroom was produced based on the designing framework comprised of 6 components as follows: (1) Problem Base (2) Resources (3) Creative thinking room (4) Collaboration (5) Scaffolding and (6) Coaching obtaining from major theories in various aspects: Constructivist base, Creative thinking base, Flipped Classroom base, Technologies and Media base, and Contextual base as shown in the following Figure. 1-6.

Element	Describe the elements	Example of design Shot
(1) Problem base	Problem base: It was shown Problem base for enhancing the learners to construct knowledge and analytical thinking.	 <p>Figure.1 Problem base</p>
(2) Resources	Resources: It was shown Resources for collecting information, content, technology which the students used in Problem base while they were facing it.	 <p>Figure.2 Resources</p>
(3) Creative thinking room	Creative thinking room: It was shown Creative thinking room for enhancing creative thinking based on Guilford's (1967) approach for all 4 aspects including Fluency room, Flexibility room, Originality room, and Elaboration room.	 <p>Figure.3 Creative thinking room</p>

Element	Describe the elements	Example of design Shot
(4) Collaboration	Collaboration: It was shown Collaboration for supporting the students to share their experience with experts on logo design with Adobe Illustrator CS6 through Facebook for expanding their multiple perspectives.	 <p>Figure.4 Collaboration</p>
(5) Scaffolding	Scaffolding: It was shown Scaffolding for enhancing students to solve problems or learning in case that they couldn't be able to do their own task by themselves.	 <p>Figure.5 Scaffolding</p>
(6) Coaching	Coaching: It was shown Coaching by teachers and experts on logo design with Adobe Illustrator CS6 with best practice.	 <p>Figure.6 Coaching</p>

3.2 The students' creative thinking.

The results revealed that: The four kinds of abilities of the students' creative thinking (Guilford, 1967) were found as follows: 1) Fluency that they can think of the answer quickly in limit time and variety of answers, 2) Flexibility that they can find various kinds of answers freely and they can apply and adapt them to be useful for problem solving and increasing fluency to be new and different invented things, 3) Originality that they can think with new and different from general thinking by applying prior knowledge and adapting it as new things, and 4) Elaboration that they can widely and farther expand their thinking that they got used to practice such as their thinking in detail for decorating and expanding their main idea to obtain a more complete. The creative thinking was found from the creative thinking test form ($\bar{X} = 31.59$ and S.D. = 1.67) that every learner passes the 70% criterion of the specific scores.

3.3 The students' opinion towards the constructivist flipped classroom.

The results revealed that: The students' opinion towards the constructivist flipped classroom was divided into 3 aspects. They were 1) the contents can be supported concept formation of the learners, 2) characteristic of constructivist flipped classroom was designed for helping learners to easily for learning about in classroom and out of the classroom, 3) the constructivist flipped classroom supported and encouraging learners to enhancing knowledge construction and creative thinking.

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