

The Problem Solving Model in Graduate Project for Students of Visual Communication Design

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Summary

Creativity is regarded as key to the construction of knowledge-based economy in the 21st century. Moreover, positive thinking patterns and effective thinking strategies are deemed as key to creativity and problem solving.

The aim of this study is to develop the appropriate “Problem Solving Model” in graduate project for students and to find out the characters of “Problem Solving Process” of Visual Communication Department. This paper is a qualitative research based on Grounded Theory. Based on CPS model, the researcher interviewed the graduate students and teachers on their graduate project courses. By interviewing four teachers and four students for two to four times respectively, all 813 minutes interview data is transcribed and recorded into a large file with 52710 words in total.

There are 7 categories of differences and 34 characters identified from the interviews:

1. Connotation of the courses: (1) The contents of the Graduate Project can fall into four categories; (2) The content is confined within boundary of the curricula of Department of Visual Communication; (3) Selection on topics varies with students' capabilities; (4) Exhibition is one of the major concerns in curriculum programming; and E. Design concept is gradually more emphasized than expression techniques.
2. Classroom instructions: (1) Students are authorized to form their own groups unless

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- any changes of the team members or topics; (2) Students may schedule their own programs which major assessments are conducted; (3) Students present their works in the sessions while the teachers give feedback and directions; and (4) The progress of this program is mainly activated by presentations, term exhibition and peer evaluation.
3. Positions of teachers: (1) A team of teachers direct together; (2) Teacher instruction is provided throughout the procedure; (3) Expectations on students vary with students' capabilities; (4) Students are encouraged to make breakthroughs and cooperate across their own specialized fields; (5) Teaching directions cover data managing, topic selecting, creativity practicing, techniques expressing, and personal emotion controlling; and F. Teachers' attitudes would affect students' learning motivations.
 4. Frequent problems encountered by students and their solutions: (1) The problems that students may encounter could be categorized into 15 types; (2) The major solution for students is self-improvement with problem solving abilities; (3) Both teachers and teammates are the most frequently sought ones for advice; (4) The issues that the teachers concern can be summarized into 10 types.
 5. The impact of the Young Designers' Exhibition: (1) Teaching syllabuses are adapted for the exhibitions; (2) Works tend to be influenced by display effects; (3) Students highly value the visual image design of their exhibition; (4) Extra work and extra costs often arise for the exhibition; (5) Accidental winning of prizes by inferior works often upset the teachers with their directions for future students.
 6. The interviewees' reflections and argument for creativity processes in the Graduate Project: (1) Summarize ideas before visualize them; (2) Students are encouraged to play with the design ideas to maximize their imagination; (3) Imitate masterpieces before self-creating; (4) Possible commercialization of their works is under consideration when designing; (5) Creativity developments are gradually refined into concrete works; (6) Absorb others' design strategies and adapt into one's own Graduate Project; (7) Proficient skills and team work are essential.
 7. The discrepancies between the interviewees' experiences and CPS: (1) There is not enough engagement on "visualization of ideas" with CPS; (2) Creativity

development with Graduate Project usually start with some pre-existed ideas; (3) Since the development of creativity appears spiral and circulative with the students in this research, CPS steps would need to be adjusted when applied here.

In order to interpret major processes of “Creativity Development of the Graduate Project”, this research follows “To accomplish exhibition works is the goal of problem solving of Graduate Project” as the storyline, and a process of refining, teasing, and repetitive is therefore identified.

Based on these characters and results of the interviews, the researcher constructed a “Problem Solving Process” of graduate project, which includes: 1.Face to the problem and task; 2.Identify the subject and materials; 3.Generate ideas; 4.Choose the best idea; 5.Develop idea; 6.Propose and testify; 7.Set the project; 8.Accomplish and exhibit. In addition, there are task assessment and resource search being performed on demand along the whole procedure. However, such linear process is not sufficient in presenting the wholeness characteristics of the dynamic process, interchanging acts, and spiral circulation phenomena of this Graduate Project.

Moreover, this research also established a “Dynamic Model of Problem Solving” (see figure 3), which contains five parts:

1. Problem Understanding: (1) Face the problem and understand the task; (2) Identify the subject and materials.
2. Creativity Generation: (1). Generate ideas; (2) Choose the best idea; (3) Develop the idea.
3. Project Completion: (1) Propose and testify; (2) Set the project; (3) Accomplish and exhibit.
4. Task Assessment: It will be performed on demand to realize the task-oriented nature and improve students’ metacognition abilities.
5. Resources Search: It is deemed as a platform that helps students with problem solving, affirms teachers’ role in learning process, and well reflects the qualities of constructivist instruction.

In addition to facilitating the students of the Department of the Visual Communication Design in their Graduate Project, the “Dynamic Model of Problem Solving” demonstrates the following traits:

1. This dynamic model adapts to individual differences among students, which fit with the qualities of constructivist instruction.
2. The programming of “Problem Solving Processes” matches well with the evolution of educational theories.
3. Flexible development processes highly reflect the “spiral process of creative thinking” phenomenon of problem solving.
4. Providing available sources for students’ problem solving not only affirms teachers’ role in learning process, but also meets the qualities of constructivist instruction well.
5. Task assessment can be performed on demand, to realize the idea of task-orientation, to improve students’ metacognition abilities, and to respect personal thinking styles.
6. Value students’ overall performances and the development of multiple intelligences.
7. Meet the goals of vocational education by emphasizing both creativity and practices.

To sum up, the “Problem Solving Process” and “Dynamic Model of Problem Solving” established in this research can well demonstrate the thinking patterns and processes of Graduate Project after comparisons with related literature. It also meets theoretical and design education demands, and serve as a base for further research.

Keywords: graduate project, grounded theory, problem solving, visual communication design, design education