

# Effect of Creative Thinking Teaching on the Creativity of MICE College Students

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**Abstract**—This study aims to explore the implementation of creative thinking teaching methods in the Introduction to MICE Industry and discovers the effect of the course on the creativity of college students. Based on this research, the researcher hopes to propose teaching strategies and specific suggestions that will help enhance the creativity of college students in the course design of the Introduction to MICE Industry.

In order to effectively achieve the research purpose, the first phase of the research work focuses on the creation and revision of the literature on the creative thinking teaching, the establishment of research theory, the design and creative thinking teaching programs and testing tools. The second phase of the research focuses on the implementation of experimental teaching. The research objects of this study are freshmen in the Tourism College students in Hsinchu City, with a total amount of 100 students. The two groups were assigned as the experimental group and the control group. The experimental group will conduct an 16-week creative thinking teaching program, while the control group will conduct an 16-week traditional teaching program.

The experimental method is pretest-posttest design. The students in the experimental group and the control group will be tested by the Abbreviated Torrance Test for Adults (ATTA) before and after the course. The data obtained will be tested by independent sample T to test whether there is a significant difference between the two independent data. Both groups of students will be required to film marketing films as the basis for evaluation. However, the experimental group students will select the Hsinchu Tungmen Market as the theme to shoot marketing videos as a University Social Responsibility (USR) project. On the other hand, there is no restriction on the choice of the subject for the control group students. The creative marketing videos taken by the two groups of students after different teaching methods are scored by the method of Consensual Assessment Technique (CAT). Through the collection of qualitative data, the learning outcomes of creative thinking teaching and the learning response of students are presented.

**Keywords**—Creative Thinking Teaching, University Social Responsibility (USR), Abbreviated

*Torrance Test for Adults (ATTA), Consensual Assessment Technique (CAT)*

## I. INTRODUCTION

### A. Research Motivation

As an inborn ability of human beings, creativity is the motive power for the continuous progress of science, technology and civilization. Appropriate education can promote the development of creativity; on the contrary, forced knowledge infusion and cramming education relatively impede the development of creativity. As the world becomes increasingly complex and industries change rapidly, the professional knowledge received now will not be applicable after graduation, and even more than half of the jobs have not been invented before students enter the workplace. Creativity has become the ability for individuals to accept the challenge that the world is changing rapidly. However, the industrial circle comprehensively displays the professional knowledge and critical thinking of creativity, so, it is urgent to cultivate students' creativity.

### B. Research Objective

The problems that this paper is going to discuss are as follows:

1. By means of the intervention of the creative thinking course of the Introduction to MICE Industry, whether there is a significant difference in students' performance in creative thinking ability (fluency, openness, flexibility and originality) pretest and aftertest of the Consensual Assessment Technique (CAT)?
2. Whether the intervention of the creative teaching can make the works produced by the experimental group more creative than that produced by the control group after the CAT?
3. Whether students in the experimental group are interested in accepting researcher's experimental teaching materials and teaching of the Introduction to MICE Industry?
4. After receiving the creative thinking teaching, whether students' interests in creative thinking in the experimental group are enhanced? Whether students in the experimental group are willing to apply it in daily life?

## II. LITERATURE REVIEW

### A. *Tungmen Market*

Set up in the 33<sup>rd</sup> year of Meiji (1900), the first generation of Tungmen Market was called “Hsinchu Market” during the Japanese colonial period. *Taiwan Daily*, the leading newspaper in Taiwan, once wrote a special report for its opening. In the 44<sup>th</sup> year of Meiji (1911), as the largest market in Taiwan, “Hsinchu Market” even surpassed the Taipei Xinqijie Market (Red Mansion of Ximending) completed in 1908 and obtained a good reputation of “Ximending in Hsinchu”. In 1977, Tungmen Market became the first market with cement structure in Taiwan, the first market with electric escalator and the most modern shopping center in Hsinchu after being transformed into a collection market, which was the place full of childhood memories of Hsinchu people aged 30 to 40. However, with the change of consumption habits, Tungmen Market has been declining as the time changes, and “ruins”, “mess” and “gloom” are the pronouns Tungmen Market in Hsinchu people's eyes.

### B. *Definition of Creativity*

Due to the complexity of creativity, its definition varies as time goes on and perspectives change. Guilford (1971) advocated that creation is a thinking ability, and thinking can be divided into divergent thinking (open thinking) and convergent thinking (concentrative thinking), among them, divergent thinking is related to the creativity; during the process of solving a problem, divergent thinking can look for different solutions in various aspects, including fluency, flexibility, originality, elaboration and sensitivity (Chen Huanyu, 2000). Williams (1980) believed that everyone has creative potential, but the quantity of creativity is different, and further proposed that cognitive-affective interactive model shall also consider the curiosity, imagination, adventure and challenge in the affective field in addition to fluency, flexibility, originality and elaboration at the cognitive aspect. In 1984, Torrance and Orlow put forward that fluency, flexibility, originality and elaboration can be used as the assessment standards for creativity. Csikszentmihalyi (1988) pointed out that creativity is a cross-field interactive force to change and transform the given field into a new field.

Wang Qimin (1997) mainly used these four abilities to assess the following items:

1. Fluency: The ability to come up with multiple possibilities or answers and assess the fluency of an idea.
2. Flexibility: The ability to switch the direction of thinking, draw inferences about other cases from one instance and use different angles and ways to think about the same problem and get different solutions.
3. Originality: The ability to come up with unique ideas or solutions in the face of problems.

4. Elaboration: The ability to supplement new ideas or add new conceptions to the original conceptual framework, so that the original frame can be more perfect.

### C. *Assessment of Creativity*

After advocating the assessment of creativity in 1950, Guilford first prepared the assessment scale of creative thinking, which attracted people's attention gradually. Guilford mainly focused on the measurement of “divergent thinking ability” but the Torrance Test of Creative Thinking compiled by Torrance (1974) focused on creative thinking in graphics and characters by taking fluency, creativity and originality as the scoring items.

At the same time, fluency, flexibility, originality and elaboration are also be tested mainly

Hocevar & Bachelor (1989) divided the creativity assessment tools into eight categories:

1. Test of divergent thinking
2. Attitude and interest inventories
3. Personality inventories
4. Biographical inventories
5. Rating by teacher, peer, and supervisors
6. Judgments of product
7. Eminence
8. Self-reported creative activities and achievements

### D. *Creative Thinking Teaching*

Mao Lianwun (1984) pointed out that the activity of designing courses with the content of the course is a teaching mode that can stimulate students to develop creative behaviors in a good supportive teaching environment, namely, the teaching for creativity. Chen and Wang Zhende (2004) further explained that teaching for creativity refers that with the purpose to cultivate students' creativity, teachers create environments and situations that can guide students to create thinking, use various teaching methods, strategies and textbooks and encourage students' creative behaviors through course contents and planned teaching activities. However, creative teaching emphasizes that teachers use novel and original teaching methods. The difference between them is that teaching for creativity must cooperate with the implementation of the course and use creative thinking strategies to achieve the goal of stimulating creativity and cultivating creative thinking skills while creative teaching refers that teachers use creative teaching methods to make courses lively and diverse with the purpose to achieve the teaching objectives through creative teaching methods instead of taking the cultivation of students' creativity as the main goal. (Wu Qingshan, 2002; Chen Xiayan, Wang Zhende, 2004; Zhang Yulin, 2008).

### E. *Creative Thinking Teaching Mode*

Williams (1972) proposed the “Parameter Analysis Creative Teaching model” as shown in Figure 2-1,

which aimed to stimulate students' creativity and cultivate their attitude of loving creation. Composed of “course”, “student behavior” and “teaching strategy”, this method is used as the basis to improve course teaching method through the informed interaction in a three-dimensional space.

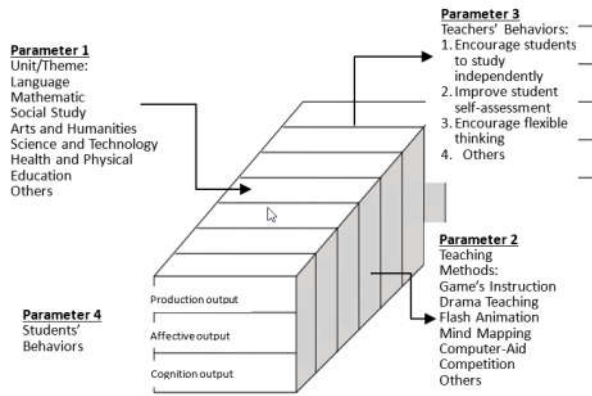


Figure 2-1 Parameter Analysis Creative Teaching Model  
Source: Zhang Shihui. (2011). Exploration of the Teaching, Learning and Evaluation for Creativity. Bimonthly Journal of Educational Materials and Research, (100), 1-21.

#### F. Consensual Assessment Technique

Amabile believed that whether a product is creative must be judged independently by a group of judges who are appropriate and familiar with this product field during the scoring process. Amabile (1983, 1996) further developed the Creative Consensus Assessment Technique and proposed the implementation principle for the CAT:

1. In terms the selection of creative task, the task must be open enough to trigger considerable flexibility and novelty and can produce some products or clearly observable responses that are suitable to be used for the assessment.
2. Judges shall have some experience or have received training in this field instead of an expert in the product field.
3. Judges shall independently assess the works according to their own subjective definition of creativity and avoid the opportunity of negotiation or communication during the assessment process.
4. The assessment indexes shall include creativity, skills related to the field or sense of beauty
5. The assessment shall be based on the relative standard after the comparison of products rather than the absolute standard during the process of scoring.
6. Each works shall be assessed in a random order according to evaluation indexes at different levels during the process of scoring.

According to Amabile's ACT, this research selected the titles of the experimental works (creative marketing

films) that could evaluate this research in the three groups of creativity, technique and aesthetics by using the items in the above scale. 14 items were adopted in total, including 6 items in the creativity group (creativity, novel application of materials, novel ideas, effort significance, details and complexity), 5 items in technical group (technical goodness, overall organization, conciseness and liveliness, plan significance, expressivity), 3 items in esthetic group (esthetic appeal, preference, display value). See Appendix I for the consensus assessment scale used in this study.

### III. RESEARCH METHODS

#### A. Research Design

Setting the research object as two classes of freshmen in the School of Tourism of a university, this research adopted ATTA, CAT, questionnaire feedback and other research methods. With the estimated number of 100 students, the course of the introduction to C&E Industry course was taught for 18 weeks (three lessons a week and 50 minutes a lesson). Excluding the pretest of ATTA at the first week and aftertest of ATTA, questionnaire survey and CAT at the last week, there were 16 weeks of teaching activities. Two classes of students were divided into the experimental group and the control group. 16 weeks of creative thinking teaching activities were conducted for the experimental group, while 16 weeks of traditional teaching activities were conducted for the control group.

1. Independent Variable: Students are divided into the experimental group and the control group.
2. Dependent Variable: The experimental group and the control group receive the aftertest at the 18th week, and the creativity index is the score of aftertest.
3. Control Variable:
  - a. Students in the experimental group and the control group have the same entering behavior and prior knowledge.
  - b. Teachers in the experimental group and the control group have the same teaching hours.
  - c. The course content in the experimental group and the control group is all themed as “the Introduction to C&E Industry” and students in the experimental group and the control group shall shoot marketing films.

After 16-week teaching activities, the experimental group and the control group produced different marketing films. In order to evaluate the creativity performance of the two groups, 14 items in the creativity scale in the art field revised by Amabile (1983) were selected as assessment items for the CAT according to the characteristics of marketing films. See appendix I for details. After being evaluated and analyzed by the CAT,

the works produced by the evaluatee can obtain the scores of creativity, technology and aesthetics respectively.

**B. Research Object**

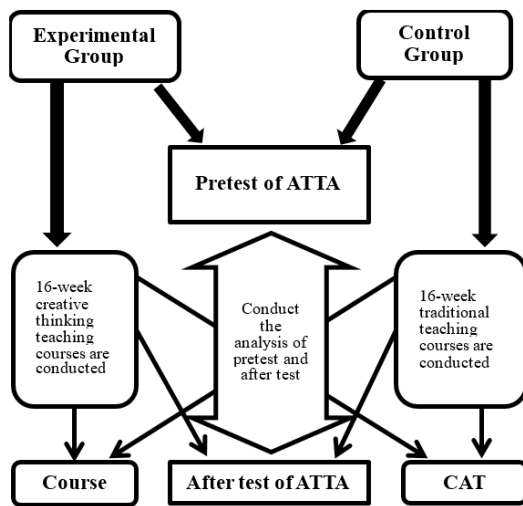
Two classes of freshmen in the School of Tourism of a university are set as the research objects, and the estimated number of students is 100.

**C. Research Process**

Stage 1: Literature Review	Stage 2: Self-criticism and Revision	Stage 3: Self-examination and Self-criticism
1. Preparatory Work	1. Teaching Activity	1. Questionnaire Survey
2. Research Problem Forming	2. Student Product Producing	2. Research Report Writing
3. Research Object Determining	3. After Test Conducting	
4. Pretest before Implementation	4. Expert Assessment Conducting	

**D. Research Framework**

Figure 3-2 Research Framework



**E. Research Tools**

**1) ATTA**

This research used the version of Abbreviated Torrance for Adults compiled by Kathy Goff and E. Paul Torrance in 2006 with the suitable object of adults aged more than 18.

**2) CAT**

This research selected 14 items in the creativity scale in the art field revised by Amabile (1983) as assessment items for the CAT. Each item was rated as relatively high, medium and low with a five-point scale, among

them, 1 indicates the lowest rating and 5 indicates the highest rating. See appendix I for details.

**3) Course Feedback Form**

Referring to the Course Feedback Form of Guo Yahui (2003), this research recompiled it into the Course Feedback Form in line with the implementation of this research; see Appendix II for more details. The questionnaire is divided into teaching method, course design, personal feelings and so on. Four-point Scale in the Liker Scale was used with the grades of completely in conformity with, mainly in conformity with, inconsistent with and completely inconsistent with. In addition, four open questions were designed to further analyze students' feelings and opinions after participating in courses.

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