



The Development of Inductive Approach for Artistic Creativity Encouragement Based on Lesson Study: A Case Study of Product Design for Mattayomsuksa 3 (Grade 9) Students

Narit Vadhanabhu

Piboonbumpen Demonstration School, Burapha University, Chonburi, Thailand

Abstract

This study aims 1) to develop inductive approach for encouraging artistic creativity emphasizing on product design of Mattayomsuksa 3 (Grade 9) students based on lesson study, 2) to examine student's learning achievement, 3) to study student's artistic creativity, and 4) to examine student's satisfaction toward inductive approach.

This is a One-Group Pre-test - Post-test experimental research. The samples gained from purposive sampling are Mattayomsuksa 3 (Grade 9) students at "Piboonbumpen" Demonstration School of Burapha University. The research tools are 1) 6 lesson plans basically developed by lesson study, 2) 30 sets of learning achievement test with difficulty index (p) between 0.33 to .80, discrimination (r) between 0.20 to 0.67, and reliability of 0.95, 3) creativity assessment form, and 4) satisfaction evaluation form. The statistics used for data analysis are percentage, mean (\bar{x}), standard deviation (S.D.), and t-test.

The findings are as follow. First, the efficiency range of the developed lesson plan is 88.89/85.65 which is higher than the set standard (80/80). Second, the student's learning achievement gained from the post-test is higher than that of the pre-test with the statistical significance of .05. Third, the student's artistic creativity is in distinction level. Fourth, the satisfaction toward the approach falls into high level.

Key words: inductive method, lesson study, creativity

Rationale

Anurutwong (2011: 133) stated that creativity is an important mental ability; also, it is considered playing significant role in creating new things and it is an indicator predicting whether that particular individual will be successful in their profession. Hence, creativity is valuable to mankind for it helps initiating innovation.

Because of the significance of creativity, educational system offers the students opportunity to develop their creativity according to Visual Art Learning Framework (So1.1), Art Subject Group mentioning required content and experience for the students that the students are able to create visual art work based on their imagination and creativity, to analyze and criticize the value of visual art works, to freely

express their feelings and idea toward artworks, and to appreciate and apply visual art into their daily lives. (Ministry of Education, 2009: 2) From this statement, artistic creativity is highlighted and the creativity development is necessary.

The content of product design obviously promotes student's artistic creativity because it purposely provides the students opportunity to design innovative product. However, the recent approach of this subject is not very successful which can be seen from the students' works which do not clearly express students' creativity and are not newly created. The majority of the students fail to meet the criteria of learning achievement; also, they cannot creatively design new products because they stick to the conventional principles and the learned lessons.

As a result, the problems have been analyzed and the resolution, which is lesson study, has been considered. This method not only improves teacher profession but also upgrades learning process which leads to better changes. (Inprasitha, 2009: a) Aimed for encouraging the students to, extremely and freely, exercise their creativity and to be able to develop their individual knowledge from the assignments, it is agreed upon that the instruction should be improved. This is because new style of teaching allows students to improve their creativity. Meanwhile, the teachers need to implement various approaches especially divergent thinking approach, mind mapping approach, and brainstorming approach. (Malakul Na Ayudhaya, 2002: 46)

Inductive approach or inductive learning method allows students to make conclusion or rule by themselves from observation, experiment, comparison or analysis. (Moonkum and M., 2002: 15) This is coincidental with the findings of a great number of works studying the implementation of inductive approach into different subjects that this method encourages students to think creatively and freely and allows the students to apply the developed knowledge into various situations. When the students can maximize their

creativity and use it efficiently, it can eventually benefit to the nation.

Objectives

1. To develop inductive approach for encouraging artistic creativity emphasizing on product design of Mattayomsuksa 3 (Grade 9) students based on lesson study
2. To examine student's learning achievement
3. To study student's artistic creativity
4. To examine student's satisfaction toward inductive approach

Hypotheses

1. The developed inductive approach is efficient at 80/80 criteria.
2. The student's learning achievement gained from the post-test is higher that of the pre-test.
3. The overall score of student's artistic creativity is at distinction level.
4. The student's satisfaction toward to developed inductive approach is rated high.

Methodology

Scope of study

1. Content

The content for this study is the lesson of product design consisted of its definition, principles, product category, concept and product form, visual elements, materials, and product development.

2. Population

The population includes 224 Mattayomsuksa 3 (Grade 9) students from 7 classes attending 1st semester of academic year 2013 at "Piboonbumpen" Demonstration School, Burapha University

3. Sample

The samples gained from purposive sampling are students in Mattayomsuksa 3 (Grade 9) class 1 consisted of 36 students attending 1st semester of academic year 2013 at "Piboonbumpen" Demonstration School, Burapha University.

4. Variables

4.1 Independent variable is inductive approach developed from lesson study

4.2 Dependent variables are

4.2.1 student's learning achievement

4.2.2 student's artistic creativity

4.2.3 student's satisfaction toward inductive approach

5. Duration

The duration of the experiment lasts 5 weeks. The total number of experiment periods is 9 periods, 2 periods (each period lasts 50 minutes) per week in 1st semester of academic year 2013.

The process is consisted of

1. review of literature related to lesson study, inductive approach, and creativity development

2. development of the experiment tools which are

2.1 lesson plan

2.2 learning achievement test

2.3 artistic creativity assessment form

2.4 satisfaction evaluation form

3. tool assessment

4. try out to 2 groups of students and tool revision

5. actual experiment

6. data analysis

7. conclusion and discussion

Study Process

1. Lesson plan development

A lesson plan, relied on inductive approach, is developed by the researcher and team, in total of 5 people. The lesson plan development begins with

1.1 scoping the problem and development guideline

1.2 scoping the content and creating the lesson plan

1.3 criticizing the plan

1.4 revising the plan

2. Making the research tools

3. Try outs

3.1 preparing the equipment and materials for each class

3.2 giving a pre-test and conducting the instruction as specified in the lesson plan with the observation of the research team

3.3 reflecting the ideas and conducting 1st revision of the lesson plan

3.4 after 2nd try out; conducting 2nd revision of the lesson plan and conducting the actual experiment

3.5 assessing the students' learning achievement and evaluating the students' satisfaction toward the approach

4. Assessment of students' designs (This process is done by specialists.)

5. Data analysis, conclusion and discussion

Results

1. The efficiency value of the developed lesson plan is 88.89/85.65.

2. The student's learning achievement score, gained from the post-test, is higher than that from the pre-test at a statistical significance of .05.

3. The student's product design score is in distinction level (= 4.13, S.D. = 2.12).

4. The student's satisfaction toward the developed lesson plan is in high level (= 3.80, S.D. = 0.04).

Discussion

The discussion is divided into 2 parts as follow.

1. Efficiency

The efficiency value of the developed lesson plan (E1/E2) is 88.89/85.65. This can be interpreted that the efficiency of the developed plan is higher than the set criteria, 80/80. This is because the specified activities allow the students to develop knowledge through examining a variety of products, analyzing and categorizing the products, and exchanging their ideas and knowledge. Therefore, the students can per-

ceive and remember the knowledge well. This is in accordance with the findings of a number of studies applying lesson study into the development of lesson plan of different subject groups. For example, Chaisrisa (2010) develops a lesson plan for teaching addition and subtraction of counting number with result, augends and minuends ≤ 100 for Pratomsuksa 2 (Grade 2) students through TAI cooperative learning approach and the findings are that the efficiency value of the developed lesson plan is 83.50/78.00 which is higher than the set criteria, 75/75. It is also coincidental with the findings of Weerapan's work (2010: 112) which is an application of lesson study. Her study shows that the efficiency value is 83.05/79.72 which is higher than the set criteria and the student's learning achievement, gained from the post-test, is higher than that of the post-test at the statistical significance of .05. This is because the provided activities offer the students chances to have a direct experience and to develop the knowledge on their own which allow them to do better at the post-test. This is also supported by the findings of Srithong's (2011) entitled "Comparison of Deductive and Inductive Teaching Methods for Present Perfect and Past Simple Tense Classes of Grade-10 Huay So Wittayakhom Ratchamangkla-phisek School Students, Chiang Rai Province", that the student's learning achievement, gained from the post-test, is higher than that of the post-test at the statistical significance of .05. Another supportive study is Kaenthong's (2011) "Production of Critical Thinking Development Kits Using the Inductive Thinking and Mind Mapping Instruction of Thai Language for Mattayomsuksa 3 (Grade 9) Students". The findings of her study show that the student's learning achievement, gained from the post-test, is higher than that of the post-test at the statistical significance of .01. Kothdee's work (2011) which is "The Development of Critical Reading by Inductive Learning Method of John Steward Mill for Mattayomsuksa 1 Students" also shows that the student's learning achievement, gained from the post-test, is higher than that of the

post-test at the statistical significance of .05.

When examining the students' artistic creativity from their works based on Torrance's 4 scales of creative thinking (fluency, flexibility, originality, and elaboration), it is found that the student's score is in distinction level. This is because the provided activities offer the students opportunities to see and examine different and unseen design works and to practice designing the products on their own; therefore, the students are able to well produce their design works. This is supported by G. Francis Xavier's statement cited in Rudeekachorn (2012: 38) that human brain memorizes information in 3 ways: seeing, hearing, and doing. By memorizing information in form of picture, the brain can memorize 65%. Memorizing information in form of sound, the brain can memorize 20% and, in form of movement, the brain can memorize 15%. Hence, directly experiencing unseen works allows students to think out of the box.

For the satisfaction toward the inductive lesson plan which is rated high, it is because this learning method does not emphasize on principles of design as the first priority but lets them freely create their own works. The students enjoy doing their works without being stuck to the conventional style or principles. This is supported by the findings of Kaenthong's study (2011) and Kothdee's work (2011). The observation of the students' behavior throughout the research duration (both of the 2 try-outs and actual experiment) shows that the students are more active than that existing in the class of the previous semester. This indicates that inductive approach can efficiently improve student's learning ability and it can be employed in every subject. Kammanee (2007: 341-342) mentions the use of inductive learning method that it allows students to acquire knowledge on their own which gives them better understanding and longer memory.

2. Lesson plan development based on lesson study

The researcher and art teachers in Art Subject

Group of Piboonbumpené Demonstration School, Burapha University with the contribution from the Head of the Department of Learning Management, Faculty of Education, Burapha University have cooperatively worked on lesson study following these steps.

2.1 Scoping the problem and planning

The researcher and the team brainstorm for scoping the problem based on the investigation of difficulties related to the content of product design course occurring in the previous academic years and it is agreed upon that instruction had to be revised, so a guideline is initiated for making a lesson plan which can promote student's maximum artistic creativity. After the lesson plan is created, appropriate duration for each process is criticized by external specialists. This procedure is conducted in form of coaching which is similar to the process of Thongsae'n's study (2010: 250) that employed guiding and imitating method. This is also in agreement with the findings of Inprasitha's work (2009: 97) stating that to create the most appropriate lesson plan the person playing the most important role is external specialist.

2.2 Class observation and idea reflection

Classroom observation is followed by idea reflection and the outcome is used for lesson plan revision. In class observation of each try-out, research team members are assigned to perform their tasks and photos are taken during the observation. Then, the ideas from observation team members are reflected and discussion. The outcome is used for improving the lesson plan and the final lesson plan is implemented to the actual studied group in the experiment process. During the class observation, a number of problems are found. This is in accordance to Saosing (2009: 95) stated that the outcome of class observation could be a great number of problems due to the divergence of class operation or else, so after each class idea reflection from the team members had to be conducted for lesson plan revision. The process had to be done repeatedly to gradually minimize the

problem. Thongsae'n's study (2010: 251) also indicates that teacher's anxiety and diffidence can cause class divergence. The problems of the class observation team when doing the class observation for the first time are the lack of experience and being unable to notice the expected points. This is in agreement with Inprasitha's statement (2009: 103) that the teachers are unsure of plan implementation and are lacking of class observation; in addition, they are uncertain of their role in class. Consequently, training on classroom observation should be provided to the teachers before the actual observation.

2.3 Revision

This process starts from collecting of suggestions and advice which are the output of idea reflection process. When the suggestions and the advice are synthesized, to cover every single point and to avoid missing of any important gist, the lesson plan is revised immediately. This practice is in accordance to Inprasitha's suggestion (2009: 108) that after finishing the implement of each step of lesson plan, the teacher should record the obstacles and problems occurring in class immediately for effective lesson plan revision.

Throughout the study process, it is necessary to mention that collaboration, contribution, and mutual understanding among the involved parties are significant. This is because every single step of lesson study requires sacrifice and it is time-consuming. Without those aforementioned necessities, lesson plan development cannot be succeeded.

Suggestions

1. For implementation

Since this research is based on lesson study, if this approach is going to be implemented, training on lesson study should be provided for the users before actual implementation.

2. For further studies

2.1 Lesson study should be applied into other content of visual arts and into other different classes.

2.2 Aimed for improving and encouraging student's artistic creativity, experimental research should be conducted to other forms of approach.

2.3 A comparison of inductive method to

other methods should be conducted to see the tendency of higher efficiency in encouraging student's artistic creativity.

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