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Instructional Package Development of Tie-Dye Based on Creative Economy Concept for Grade 8 Students

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Abstract

The purposes of the study were: 1) to investigate the effects of an instructional package of tie-dye on grade 8 students' creative thinking, 2) to investigate the effects of an instructional package of tie-dye on grade 8 students' learning achievement, and 3) to study students' satisfaction with the instructional package of tie-dye. The participants were 40 grade 8 students in the Thai context selected using the cluster random sampling method. The instruments were an instructional package of tie-dye on grade 8 students' creative thinking, a creative thinking evaluation form, a learning achievement test, and a satisfaction questionnaire. The statistics used in data analysis were percentage, mean score, standard deviation, a pair samples t-test, and effectiveness index. The results demonstrate the usefulness of the instructional package in fostering the growth of creative thinking and academic accomplishment among the participants. Moreover, product satisfaction could also be reported. The results of the study could illustrate how the creative economy concept benefits art-related subjects and students' creativity.

Keywords: Creative economy education, Creativity development, Tie-dye

1. Introduction

Creativity is an essential skill in the 21st century, and it also plays a great part in curriculum design and development at present. Creativity is the ability to discover new opportunities,

develop creative ideas, and adapt to changing surroundings (Cropley, 2011). Therefore, it is gaining in value among employment talents. As a result, curriculum designers are demanded to develop learning activities that encourage students to practice their creative thinking skills. To exemplify, students are expected to use a creative mind in solving problems in specific situations. In addition, they learn to see things in a new light, find alternate explanations, and develop new connections that end in a positive outcome (Davies et al., 2013). This includes combining various components to create innovation, organizing and refining thoughts to discover new possibilities, constructing theories and objects, and trusting your instincts. Complex pictures and representations, studies and performances, digital and computer-generated output, or virtual reality might result from creative activity (Romero & Lambropoulos, 2015).

According to Kerr and Gagliardi (2003), creativity is a complex idea that is used as a fundamental indicator to comprehend human development. Therefore, it is also difficult to define creative thinking as a learning skill. Torrance (1969, 1974) introduced the elements of creativities namely fluency, flexibility, originality, and elaboration of thinking using the idea of cognitive processes. In detail, fluency is defined as the ability to process data in response to numerous questions. The flexibility of thinking is the ability to diversify the direction of thinking in different circumstances. Meanwhile, originality is the capability to generate new and inventive ideas or products, *i.e.*, personal responses are neither seen nor new and contemporary. Lastly, elaboration is the number of details used to elaborate a response. These elements become useful skills for students in future careers and education and challenge teachers to design a class to support them.

Developing an individual's creativity is therefore not an easy undertaking. Certain components should be considered by instructors for pupils to better their cognitive processes during learning. Treffinger (1980) presented a creative learning model consisting of three learning stages: basic tools, process practice, and issue-solving. Important aspects of Treffinger's concept of creative learning include tolerating a variety of new ideas and seeing as many solutions to problems as possible, fostering a collaborative environment, fostering a growth mindset, employing concepts that involve cognitive and affective processes, and employing creative emotion and reasoning to solve problems. Jeffrey and Craft (2004) suggested creative education components. This includes encouraging students to believe in their creative abilities, identifying their creative abilities, and fostering creativity through the development of common skills and curiosity, the ability to comprehend creative processes that foster creative development, and the provision of hands-on opportunities to be creative.

Moreover, creative thinking is blended into the principles of economy and marketing under the creative economic concept. This is to challenge innovators that their creative ideas should also be recognized and have a market value (Comunian et al., 2015). According to the United Nations Conference on Trade and Development (2022), there is not one single accepted definition of the creative economy. Therefore, it is a concept that is constantly developing and advancing thanks to the dynamic interplay that exists between human creativity and ideas and intellectual property, knowledge, and technological advancement. The term "creative industries" refers, more specifically, to the economic activities that are based on one's level of

specialized expertise. In education, learning through the creative economy concept would allow students to exercise their creative thinking and how manage their goods in the real world, which should encourage them to practice other cognitive abilities such as critical thinking and problem-solving (Miroslav & Emília, 2015).

The concept of integrating creative economy in classroom settings could be seen in empirical studies (*e.g.*, Bilan et al., 2019; Katre, 2020; Rule et al., 2012; Subroto, 2015). In detail, Rule et al. (2012) found the benefits of making students develop creative products related to the economic issue in students' development of creative thinking and learning achievement. Subroto (2015) assigned a creative economy project in a class designed with a problem-based learning approach and found its potential in developing Indonesian university students' problem-solving abilities and creative thinking. Bilan et al. (2019) found the involvement of creative education in the development of the creative industry across countries. Moreover, Analyses of qualitative and quantitative data in Katre (2020), the creative economy benefit students' creativity development and that cross-cultural teams, aided by appropriate technologies for effective synchronous and asynchronous interactions, can equip students with a profound awareness of their own and other cultures.

Therefore, it could be noted from the results of the previous studies that the concept of the creative economy can be integrated into classrooms as an alternative method to develop students' creative thinking. Tie-dye products could be a potential starter creative economy project. The product allows learners to use their creative skills in the design of their goods. Integrating creative economy into the class would also let them learn more about marketing, accounting, advertising, etc. Moreover, it consists of tools, process learning, and problem-solving the elements of the creative learning model (Treffinger, 1980). Consequently, the current study utilized the creative economy concept by developing an instructional package of tyle-dye products to develop grade 8 students' creative thinking. The purposes of the study were 1) to investigate the effects of an instructional package of tie-dye on grade 8 students' creative thinking, 2) to investigate the effects of an instructional package of tie-dye on grade 8 students' learning achievement, and 3) to study students' satisfaction with the instructional package of tie-dye.

2. Methodology

2.1 Participants

The participants were 40 grade 8 students in the Thai context. They were selected using the cluster random sampling method. The participants took a creative economy course following the national basic curriculum in a public school in Thailand. The data were collected in their class. Their identities were kept secret considering the ethical issues in human research.

2.2 Instruments

2.2.1 Instructional Package

An instructional package of tie-dye on grade 8 students' creative thinking was developed considering the expected outcomes of the class. The content of the package relates to the

design of the tie-dye, material selection, processes of tie-dye, marketing, advertising, and accounting. The instructional method was designed following the CIPPA instructional model (Kammanee, 2007). The model utilizes the combination of teaching approaches in constructivism, group Process and cooperative learning, process learning, transfer of learning, and learning readiness. Teaching activities focus on the Construction of knowledge, Interaction between class members, Physical participation, Process of learning, and Application of knowledge. The package was evaluated by 5 experts of scholars and processional teachers to be appropriate ($\bar{x}$ = 4.82). The package was also used in a trial study with 40 students with similar characteristics to the participants. The result of the preliminary study suggests the potential benefits of the package.

2.2.2 Creative Thinking Evaluation

Creative thinking in the current study was assessed by a written test. Torrance's (1969, 1974) elements of creativities of fluency, flexibility, originality, and elaboration were the main components of the evaluation. The index of item objective congruence (IOC), discrimination (d), and reliability were 0.8-1.0, 0.53-0.88, and 0.75 respectively.

2.2.3 Learning Achievement Test

The learning achievement assessment was designed as a multiple-choice test. The test consisted of 30 question items with 0.27 - 0.62 discrimination and 0.82 reliability. The test content is related to the process of creating a tie-dyed product. The IOC of each item was 0.6-1.0.

2.2.4 Satisfaction Questionnaire

The questionnaire consisted of 20 positive statements related to the instructional package. It was designed in 5-Likert scales. The IOC of each statement was 0.6-1.0.

2.3 Data Collection and Data Analysis

The data were collected from November 2021 to February 2022. The study was conducted in a quasi-experimental design. The participants took pretests of learning achievement and creative thinking, learned with the instructional package, took posttests of learning achievement and creative thinking, and completed the satisfaction questionnaire respectively. The statistics used in data analysis were percentage, mean score, standard deviation, a pair samples t-test, and effectiveness index. To describe, the effectiveness index is calculated by analyzing the percentage of the participant scores during and after the treatment compared to the criteria. Due to the criteria of the current study being set at 80/80, the participant's average score in the learning activity and in the post-test should be over 80 percent of the full marks.

4. Results

Table 1. The effectiveness of the instructional package on the participants' learning achievement

Performance	Full mark	$\bar{x}$	S.D.	%
Process effectiveness (E_1)	160	131.18	5.07	81.91
Outcome effectiveness (E_2)	30	24.98	1.90	83.25
Effectiveness index (E_1/E_2) = 81.91/83.23				

The results indicate the effectiveness of the instructional package on the participants' learning achievement. During the learning with the package, the participants' average score was 131.18 ($\bar{x}$ = 131.18, S.D. = 5.07) which accounts for 81.91% of the 160 full marks. After the treatment, the participants' average score was 24.98 ($\bar{x}$ = 24.98, S.D. = 1.90) accounting for 83.25 % of the 30 maximum points. Therefore, the effectiveness index (E_1/E_2) of the instructional package was 81.91/83.23. This means the participants improved their learning achievement in the creative economic course both while and after learning the instructional package.

Table 2. The participants' creative thinking before and after the treatment

Performances	N	$\bar{x}$	S.D.	t	Sig
Pretest	40	26.43	8.233	16.365	000*
Posttest	40	47.15	6.538		

Note. $p < .05$.

The results also indicate the improvement of the participants' creative thinking before and after the treatment. A paired t-test indicates a significant difference between the participants' creative thinking scores in the pre-test ($\bar{x}$ = 26.43, S.D. = 8.223) and post-test ($\bar{x}$ = 47.15, S.D. = 6.538), t = 16.365, p = 0.00. It could be interpreted that the instructional package positively affected the participants' creative thinking considering the superior performance in the post-test.

Table 3. The participants' satisfaction with the instructional package

Statements	$\bar{x}$	S.D.	Degree of agreement
1. I found the instructional package interesting.	4.75	0.54	Very high
2. The instruction of learning activities was clear and understandable.	4.35	0.61	High
3. Figures and illustrations made the package comprehensible.	4.90	0.30	Very high
4. I found learning media such as videos, pictures, and artworks interesting.	4.98	0.16	Very high
5. I preferred practicable learning activities in the instructional package.	4.33	0.69	High
6. I preferred learning creative economy class through hands-on learning activities.	4.80	0.40	Very high
7. I enjoyed searching for information about my creative economy project.	4.88	0.33	Very high
8. I enjoyed answering questions related to my creative economy project.	4.35	0.65	High
9. I enjoyed learning activities that allow independence in expressing opinions.	4.93	0.26	Very high
10. I enjoyed questions in the class that encouraged self-learning.	4.43	0.70	High
11. I enjoyed the class discussion.	4.30	0.64	High
12. I preferred how my teachers lead the class to discussion.	4.70	0.46	Very high
13. I thought the instructional package helped develop my creative thinking.	4.75	0.54	Very high
14. I preferred grouping methods during class activities.	4.95	0.22	Very high
15. I was enthusiastic about participating in learning activities.	4.58	0.59	Very high
16. The conclusion of each learning activity session was comprehensible.	4.95	0.22	Very high
17. The duration of each activity session was appropriate.	4.25	0.43	High
18. I enjoyed tie-dying.	4.80	0.40	Very high
19. I planned to learn more about tie-dying.	4.88	0.33	Very high
20. I applied learning techniques in the class in other subjects.	4.63	0.70	Very high
Average	4.67	0.46	Very high

The results of the study indicate the participants' positive attitudes toward the instructional package. The average satisfaction score of the participants was interpreted to be at a very high level ($\bar{x}$ = 4.67, S.D. = 0.46). In detail, the learning exercises, in-class instruction, in-class discussion, and individual components of the educational package all met the participants' expectations, and they expressed satisfaction with each. In addition, the learning activities inspire the participants to become self-learners, as they reported looking for additional information about tie-dying. In addition, it was stated that the participants were

able to transfer the skills they acquired in the class to other areas of study. Therefore, it could be interpreted that the participants were satisfied with the instructional package of tie-dye on grade 8 students' creative thinking.

4. Discussion

The results demonstrate the usefulness of the instructional package in fostering the growth of creative thinking and academic accomplishment among the participants. Moreover, product satisfaction could also be reported. The study's findings could be addressed below.

First, the results of the study add more evidence to confirm the benefits of the integration of creative economy education in developing students' creativity. The findings join the previous studies (*e.g.*, Bilan et al., 2019; Katre, 2020; Rule et al., 2012; Subroto, 2015) that illustrate how learners could develop their thinking processes and creativity through the creation of artworks with the consideration of business opportunities. In the current study, the participants not only learn how to create a tie-dyed product but also had to consider the market trend, advertisements, cost, and benefits. These are the challenges they could face in a real situation. Therefore, it would help them to sharpen their creative minds to overcome unexpected situations. Moreover, the results also indicate the appropriateness of the CIPPA model in teaching practical skills in tie-dyed product creation. According to Kammanee (2007), the model focus on hands-on activities in process learning. Therefore, the participants were instructed in every step of the tie-dyeing process and permitted to practice creating the product themselves. This helped them understand the procedure and motivated them to seek out additional information.

In addition, the study's findings give evidence to support the benefits of creative economics education in enhancing the classroom environment for creativity development. The methods of learning activities in the instructional package enabled the participants to enjoy learning and become independent students. According to Holstermann et al. (2010), hands-on activities may enliven a classroom. Instead of passively listening to a lecture, students could be more engaged in their learning by engaging in hands-on practice. In the present study, the participants were pleased with the educational package because it allowed them to learn, engage in discussion, and develop their goods.

5. Conclusion

In the current study, we aimed to integrate creative economy education into the teaching of creativity and developed an instructional package of tie-dyed for grade 8 students. The three main discussions were students' creative thinking, learning achievement, and learning satisfaction. The results of the quasi-experimental study indicate the benefits of the tie-dyed instructional package on both participants' creative thinking and learning achievement. In addition, the participants also enjoyed the learning environment provided by the package.

The results of the study could be implicated in the class of creative work such as graphic design, music, and arts. The creative economy concept should be the principle of a class activity design. Economic issues could also be included in the class to place a real-world challenge for students learning arts to practice solving it. This would allow them to practice

artistic skills, problem-solving skills, and creative skills at the same time. Moreover, further studies should also apply the concept of the creative economy in another instructional model. However, it should be noted that hands-on experiences should be the focus of the model.

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