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The Relationship Between Creative Thinking and Creative Attitude in Mastering Geography Material by Senior High School Students

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This research study analyzed the relationship between: 1) creative thinking and creative attitude; 2) creative attitude and mastery of geography materials; 3) creative thinking and mastery of geography materials by three groups of tenth grade senior high school students: A (high, 80-100), B (medium, 66-79), and C (low, 50-65) grades. This study used a quantitative approach using a descriptive correlation method. The research reported: 1) creative thinking does not have a significant relationship on creative attitude; 2) creative attitude has a significant relationship on mastery of geography materials; and 3) creative thinking has a significant relationship on mastery of geography materials.

Introduction

In terms of cognition, senior high school students are those who can be classified as being in the stage of formal operational thinking. The formal operational period begins at the time when children reach the age of 11 years or older (Piaget, 2001). At that age, children will develop the cognitive ability to think abstractly. Children also can think rationally or scientifically to solve a problem. In the revised version of Bloom's taxonomy, thinking skills of senior high school students can be grouped into the stage of C4-C6, analyze and create (Anderson, 2001). Those who have such capabilities can be categorized into high-level or creative thinking.

Creative thinking is a mental activity in finding new ideas which is categorized as higher-level thinking (Hong, 2014). This is in accordance with the opinion of Davis (2004) who stated that creative thinking is a high-level thinking skill. There are some benefits for students who can think creatively − they are able to solve problems quickly and they are able to face the challenges of life. Students who are able to think creatively are able to solve problems effectively (Mayer, 1998). To be able to compete in the world of work, students must have the ability to solve problems and think creatively. Creative thinking is closely related to intelligence and knowledge / cognition. This is in line with Sternberg (1999) who stated that creative thinking is a unique meeting point between psychological attributes: intelligence, cognitive learning style, personality and motivation.

Creative thinking is capable of enhancing the mastery of learning tasks. Usodo (2013) showed how creative thinking contributed to the mastery of geometry in a class in Surakarta. Creative thinking must be accompanied by a creative attitude. Attitude can be defined as an internal part of students that can be the deciding factor in the competence of thinking and affects learning outcomes. The reality is that this attitude is less noticed by teachers; for example,

there are still many students who find it hard to learn geography for a variety of reasons, such as the number of foreign terms that are difficult to understand and the need for memorizing specific definitions.

One characteristic of creative attitude is one's ability to bear the risk of the result of one's decision (Nickerson, 1999). Rose and Nicholl (2002) stated that a person having a creative attitude is willing to take risks and is able to break away from the conventional way of thinking.

Attitude includes a tendency to like or dislike, want or not want. Rachmat (2005) stated that attitude is someone's internal symptom which has an affective dimension and it has a tendency to respond in a fixed way on an object (either like or dislike). Attitude has two tendencies − positive and negative. People who have positive feelings about an object have a positive attitude and vice versa (Gadner, 1993). Attitude cannot be seen directly, but it must be interpreted as it is still in the form of covert behavior. Creative attitude can be interpreted as positive or negative tendencies in the creative act. Creative attitude is related to creativity. Creativity can be considered as the process associated with the competence to express a specific idea (Zhang & Bartol, 2010). Some examples of creative attitude include open mindedness to new experiences, flexibility in thinking, confidence and freedom in giving judgment. Creative attitude measurement refers to a scale of attitudes, interpreted as negative or positive, which assesses the answers to questions or statements obtained from the respondents (Antonak & Livneh, 2000).

Research conducted by Lufri (2003) found that there is a significant relationship between creative attitude and the mastery of the material learning outcomes. Marliana (2013) found creative attitude to influence results. The mastery of the material in the learning of geography includes patterns of actions, values and understanding, and skills (Hannafin & Oliver, 1997). The accumulation of material mastery is the learning outcome. According to Mustafa (2011), a learning outcome is based on the student's behavior and it shows evidence of the learning process between teachers and students. Learning mastery/learning outcomes enable students to do something (Winkel, 2014). Students who understand the concept exhibit internal capabilities that are not directly visible, while behavior can be observed. According to Krathwohl (2001), learning material mastery must include memory, comprehension, application, specifying the relationship (outline), association and assessing accurately.

The purpose of this study was to analyze the relationship between: 1) creative thinking and creative attitude, 2) creative attitude and the mastery of geography materials, 3) creative thinking and the mastery of geography by tenth grade senior high school students categorized as A (high: 80-100), B (medium: 66-79), and C (low= 50-65) grades in Bandarlampung.

Methodology

This study employed a quantitative approach using descriptive correlation method. Correlation method connects one variable to another variable (Suryabrata, 2003).

The study population of992 students from three Senior High Schools: #5 (high grade, 11classes), #6 (medium grade, 7 classes) and #13 (low grade, 10 classes). The sampling technique used was "purposive" based on a specific purpose (Basrowi, 2012). Three classes were selected as a "sample" participants for this research: S.H.S. #5 (33 students), #6 (33 students), and #13 (34 students).

The instrument used to measure creative thinking was an essay test. The indicators of creative thinking ability were fluency, flexibility, originality and detail in expressing ideas. The instrument used to measure creative attitude was a questionnaire in the form of a creative attitude scale consisting of positive and negative statements, which was randomly distributed so that the students' responses were honest/objective (Gable & Wolf, 2012). This instrument used five criteria on a Likert scale: Strongly Disagree (SD), Disagree (D), Uncertain/undecided (U), Agree (A), and Strongly Agree (SA). These criteria were available in the answers column and students could only choose one answer. Student responses to the statements were then analyzed. The instrument for measuring students' mastery of geography material used questions which were prepared based on the material studied by the students in the form of an essay.

The data analysis technique used was product moment correlation using SPSS version 20. Descriptive analysis was used to provide a description of the results of the measurement of creative thinking, creative attitude, and learning mastery of geography variables. The next category was based on the ideal mean and ideal standard deviation. The tendency for creative thinking, creative attitude and mastery of geography material was divided into four categories: high, sufficient, insufficient, and low (Mardapi, 2008).

Findings and Discussion

The Relationship Between Creative Thinking and Creative Attitude

The result of calculations using SPSS showed creative thinking and creative attitudes of Senior High School students categorized into high, medium and low was 0.067, 0.120, and 0.093 respectively. These scores were greater than the 0.05 level, and is not significant relationship between creative thinking and creative attitude. Research conducted by Wahyudi (2012), who found no significant relationship between creative thinking and creative attitude of mathematics learning for the tenth grade students in Bandarlampung. Rachmat (2005) believes creative thinking requires a high level of mental activity, while creative attitude is associated with feelings or moods. (Rachmat, 2005).

The result of calculations on the level of creative thinking of Senior High School students shows that the highest score was obtained by Senior High School 5 (Bandarlampung) with the minimum score of 22.0 and the maximum score of 53.0 having a mean score of 37.5 and deviation standard of 8.8. Based on this data, it indicates that the mean score of empirical data is 37.5, which is lower than the theoretical mean score of 40 (mean ideal). This means that the creative thinking of students is low/insufficient. Next, Senior High School (which is categorized as the medium grade) is Senior High School 6 (Bandarlampung) having a minimum score of 18, a maximum score of 30, a mean value of 24.1 and deviation standard of 3.3. The data shows that the mean score of empirical data (24.1) is far below the theoretical mean score which is 40. This shows that students' creative thinking is still relatively low. The same thing happens for Senior High School 13 (Bandarlampung) categorized as low grade, which has a score of 10.8 which is extremely low in comparison with the ideal mean of 40.

Based on the data and analysis, students' creative thinking levels (categorized as high, medium, or low grade), are still low. This might be caused by internal factors, less supportive environmental factors, or the availability of instructional materials which do not encourage students to think creatively. The data description, based on the frequency of creative thinking score distribution, was done by using Sturges rules (Nugraheningsih, 2014). The data regarding the tendency distribution of creative thinking variables for each school (high, medium and low grade) are as follows.

Table. 1.1. *Tendency Distribution of Creative Thinking*

No	Score	S.H.S #5			S.H.S. #6			S.H.S. #13		
		Freq		Categ	Freq		Categ	Freq		Categ
		∑	%		∑	%		∑	%	
1	$\chi \geq 48$	5	15,2	High	0	0	High	0	0	High
2	$48 > \chi \geq 40$	7	21,2	Suf	0	0	Suf	0	0	Suf
3	$40 > \chi \geq 32$	12	36,4	Insuf	0	0	Insuf	0	0	Insuf
4	$\chi < 32$	9	27,3	Low	33	100	Low	34	100	Low
Total		33	100		33	100		34	100	

(Freq=Frequency; Categ=Category; Suf=Sufficient; Insuf=Insufficient)

Table 1.1. shows that, in S.H.S #5 which belongs to high grade school, there are 5 (15.2%) tenth grade students with high category in creative thinking, 7 (21.2%) tenth grade students with sufficient category in creative thinking, 12 (36.4%) tenth grade students with insufficient category in creative thinking, and 9 (27.3%) tenth grade students with low category in creative thinking. In S.H.S #6 which belongs to medium grade school and S.H.S #13 which belongs to low

grade school, there are no tenth grade students (0%) with high, sufficient, and insufficient category of creative thinking. All of them (100%) are students with low creative thinking. Therefore, it can be concluded that Senior High School students who are categorized as high, medium, and low category tend to have low or insufficient creative thinking skill.

The Relationship between Creative Attitude and the Mastery of Geography Material

The result of calculation using SPSS shows that creative attitude has a significant relationship with mastery of geography material which is applied to Senior High School for high, medium, and low grades. This can be seen from the significant value of 0.045, 0.036 and 0.032 respectively. These values are all smaller than the real level of 0.05, which means there is a significant relationship between creative attitude and the mastery of geography material. This is in line with the research by Mustami (2007) stating that there is a significant relationship between creative attitude and the mastery of biology materials. This occurs because creative attitude is associated with open mindedness to new experiences and freedom in giving judgment and problem solving (Csikszentmihalyi, 1996). Creative or affective attitude can determine achievement (Munandar, 2004).

The data on creative attitude in this research was obtained from an instrument in the form of a questionnaire having 35 points of questions on a scale of (1-5); the theoretical range of scores was (35-175). The score of the theoretical ideal mean/mi was 105 and the standard deviation was 23.3. On the other hand, the result of field research in the Senior High School identified as high grade (namely Senior High School 5 Bandarlampung) showed that the minimum score was 99.0 and the maximum score was 141.0. The mean value was 122.8 and the standard deviation was 10.3. Based on the data, it can be said that the average empirical score of 122.8 is higher than the ideal mean score of 105. This shows that students' creative attitude is high.

Students whose grade are in the medium and low scale have mean scores of 122 and 116 respectively. This rate is also higher than the ideal mean of 105 which means that students' creative attitudes are also high. This is possible because creative attitude is related to the heart while creative thinking deals with mind and experience. The data description of research results regarding the creative attitude variable of students in Senior High School having high, medium, and low grade are presented in Table 1.2 below.

Table 1.2. *The Distribution Tendency on Creative Attitude*

No	Score	S.H.S #5			S.H.S. #6			S.H.S. #13		
		Freq		Categ	Freq		Categ	Freq		Categ
		∑	%		∑	%		∑	%	
1	$\chi \geq$ 128,3	10	30	High	8	24	High	4	12	High

2	$128,3 > \chi \geq 105$	22	67	Suf	23	70	Suf	27	79	Suf
3	$105 > \chi \geq 81,7$	1	3	Insuf	2	6	Insuf	3	9	Insuf
4	$\chi < 81,7$	0	0	Low	0	0	Low	0	0	Low
Total		33	100		33	100		34	100	

Table 1.2 shows that, in S.H.S #5 which belongs to high grade school, 10 tenth grade students (30%) have creative attitudes with high category, 22 tenth grade students (67%) have creative attitudes with sufficient category, 3 tenth grade students (3%) have creative attitudes with insufficient category, and no tenth grade students (0%) have creative attitudes with low category. In S.H.S #6 which belongs to medium grade school, 8 tenth grade students (24%) have creative attitudes with high category, 23 tenth grade students (70%) have creative attitudes with sufficient category, 2 tenth grade students (6%) have creative attitudes with insufficient category, and no tenth grade students (0%) have creative attitudes with low category. In S.H.S #13 which belongs to low grade school, 4 tenth grade students (12%) have creative attitudes with high category, 27 tenth grade students (79%) have creative attitudes with sufficient category, 3 tenth grade students (9%) have creative attitudes with insufficient category, and no tenth grade students (0%) have creative attitudes with low category.

The Relationship between Creative Thinking and the Mastery of Geography Material

The calculation result using SPSS program in the Senior High School which has high level scores shows that creative thinking has a significant relationship with the mastery of geography material. It can be seen from the significant value of 0.00 which is smaller than real level of 0.05 which means there is a significant relationship. The relationship between creative thinking and the ability to master geography material is very strong (equal to 0.738). It also happens to students in the schools with medium and lower grades. The significant value was 0.00, and this also happens to a school having low grade as the relationship is considered stronger compared to that having high grade which is 0.825. This result is in line with the research by Harmon (2009), which concluded that there is a significant relationship between creative thinking and mathematics achievement of Islamic School students in Ngawi. This happens because creative thinking is closely related to intelligence and knowledge, while the mastery of geography material deals with knowledge too.

The data related to the mastery of geography material in this research was obtained from an essay test consisting of 4 questions, each of which had the maximum score of 2.5 so that the scale is (0-10). The mean of the theoretical score or the ideal mean was 5 and the standard deviation was 1.7. Based on the research result from the Senior High School having high grades (Senior High School #5

Bandarlampung), the minimum score obtained was 5.9 and the maximum score was 9.3. The mean value was 7.6 and the standard deviation was 0.95. Based on the data, the empirical mean score (7.6) was higher compared to the ideal mean score of 5. This proves that students' mastery of geography material is considered high. The same thing also happens to those schools having medium and low grades which are found to have high scores compared to the ideal mean score which is 5.57 and it has a comparison of 5 though it has minimum score of 4.5 and maximum score of 6.5.

High school students who are categorized as low grade have a mean score of 2.7 which is lower than the ideal mean of 5. This means that the mastery of geography by these students is still very low. Students' low mastery on geography material is predicted to have a correlation with the students' internal factor. Besides, it might also be caused by low learning motivation and less understandable geography teaching materials. The description on the research finding concerning the tendency of the dependent variable is the mastery of geography material in Senior High Schools having high, medium, and low grades and is presented in Table 1.3 below.

Table 1.3. *The Distribution Tendency on the Mastery of Geography Materials*

No	Score	S.H.S #5			S.H.S. #6			S.H.S. #13		
		Freq		Categ	Freq		Categ	Freq		Categ
		∑	%		∑	%		∑	%	
1	$\chi \geq 6,7$	26	78,8	High	0	0	high	0	0	High
2	$6,7 > \chi \geq 5$	7	21,2	Suf	29	87,9	Suf	2	5,9	Suf
3	$5 > \chi \geq 3,3$	0	0	Insuf	4	12,1	Insuf	14	41,2	Insuf
4	$\chi < 3,3$	0	0	Low	0	0	low	18	52,9	Low
Total		33	100		33	100		34	100	

Table 1.3 shows that, in S.H.S #5 which belongs to high grade school, 26 tenth grade students (78.8%) master geography materials with high category, 7 tenth grade students (21.2%) master geography materials with sufficient category, and no tenth grade students (0%) master geography materials with insufficient and low category. In S.H.S #6 which belongs to medium grade school, no tenth grade students (0%) master geography materials with high category, 29 tenth grade students (87.9%) master geography materials with sufficient category, 4 tenth grade students (12.1%) master geography materials with insufficient category, and no tenth grade students (0%) master geography materials with low category. In S.H.S #13 which belongs to low grade school, no grade students (0%) master geography materials with high category, 2 tenth grade students (5.9%)

master geography materials with sufficient category, 14 tenth grade students (41.2%) master geography materials with insufficient category, and 18 tenth grade students (52.9%) master geography materials with low category.

The differences on students' mastery of geography material for the students categorized as high, medium, and low can be caused by factors such as input, the history of the school, and students' motivation (Hanushek and Rivkin, 2003). The input of high schools having high grade reveals that the test scores inclusion is 7.5 while for Senior High School having medium and lower grades the inclusion is lower than the previous one. In terms of the history of the high schools, the school having high grades was previously established in 1983, while the school having medium and low and lower grades was established years later.

Conclusions

1. Creative thinking does not have a significant relationship with creative attitude when applied to high school students with high, medium and low grades. All students in the tenth grade at Senior High School in those three categories (namely high, medium, and low) have low levels of creative thinking.

2. The creative attitude has a significant relationship with the mastery of geography as applied to high school students with high, medium and low grades. All students in the tenth grade at Senior High School in those three categories (namely high, medium, and low) have sufficient creative attitude.

3. Creative thinking has a significant relationship with the mastery of geography material and this applies to Senior High School students categorized as having high, medium and low grades. High school studentss with high grade have high mastery of geography material while high school students with medium and low grade have low mastery of geography material.

Suggestions

1. It is expected that the tenth grade of Senior High School students in the high, medium, and low categories can improve their creative thinking and creative attitude as it is related to mastery of geography material.

2. It is expected that further research can focus on the development of teaching materials which are focused on creative thinking or factors causing students to think creatively.

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