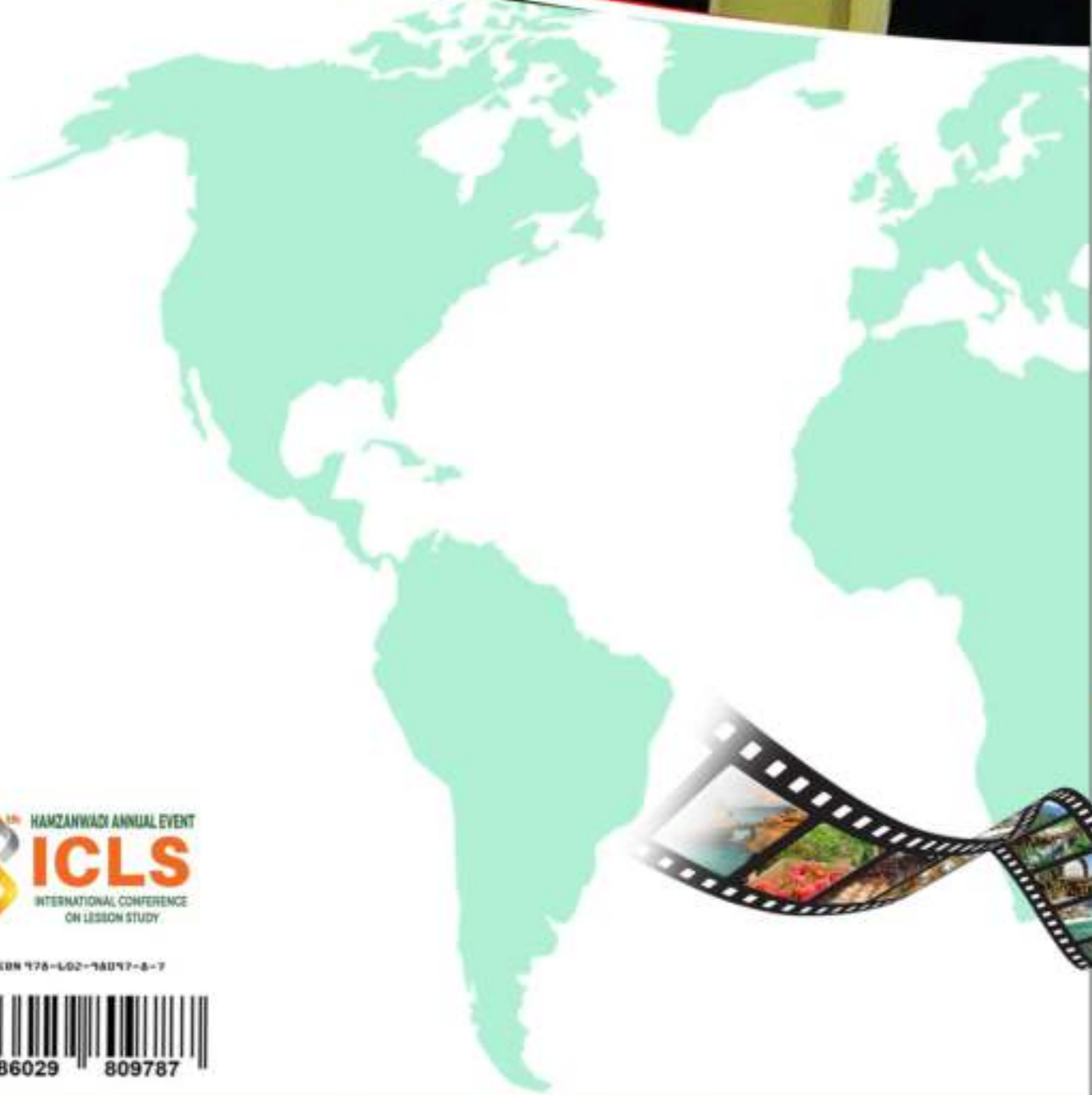




Proceeding International Conference on Lesson Study



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“Professional Learning Community through
Lesson Study for Promoting Student Learning”

14th - 16th September 2017
Lombok, West Nusa Tenggara, Indonesia



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Inquiry Learning to Train Creative Thinking Student

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Abstract

Constructivist learning is a learning directed to learners has their own insights after experiencing the process by self, so the insights obtained awakened by itself. Inquiry learning is a form of a student-oriented learning approach (Student Centered Learning), student holding important role in the learning process. Inquiry means is a question or investigation and as a general process by which humans search for or understand information. Inquiry encourages and directs students to be actively involved in the learning process by performing various activities. Inquiry assists the process of assessment student ability; one of them is high order thinking skills, one of which is creative thinking). Creative thinking is way of thinking to find alternative answers that are logical or known as diverging thinking. A focus of this research is to know the ability of creative thinking in elementary level students. The result of data analysis showed that the level of creative thinking in experimental class obtained higher gain score (0.56) while control class (0.14). Obtaining creative thinking gain scores for male students' control class (0.21), female students (0.27). In an experimental class; Male students (0.47) and female students (0.44). Therefore, inquiry can used as a model of learning to train creative thinking which impact on improving the results of creative thinking student in the learning process.

Keywords: *constructivist learning, inquiry, creative thinking, male students, female students*

A. Introduction

Assessing higher order thinking skill in the learning process needs to be done by teachers, higher order thinking skill includes (a) problem-solving, (b) making decisions, (c) critical thinking, and (d) creative thinking. Creative thinking is the highest level of cognitive level used by educational specialists Bloom and Presseisen. However, to assess the necessary routine exercises that to habituate a child's brain in the process of thinking, not just memorize and remember it.

Creative thinking is a habit of mind trained with regard to attention intuition, turning the imagination, revealing the new possibilities, opening up stunning perspectives, and generating unexpected ideas. Divergent thinking is also called creative thinking is to provide various possible answers based on information provided with an emphasis on the diversity of numbers and suitability.

The learning process that occurs tend has a target to spend lesson material and less attention quality of comprehension students' toward the material submitted. In addition, the activities are more oriented to the teacher's handbook. Students are less to explore the abilities they have because their knowledge is limited to the package book. Many students only memorize the material so that they easily forget when the material was not studied again. Students are less to express their opinions systematically even many questions that are not directed. The assumption that

knowledge can be transferred intact from the teacher mind to student's mind without notice the initial conception of the misconception student, causing the teacher feel that he has been teaching well but the students are not learning. It's means that students have not yet developed the process of developing and applying the experiences or materials learned with the preconceptions already possessed so that the concepts are developed.

As a result, thinking ability, scientific work, and problem-solving skills are encountered in they real-life. It can be one of the factors that can cause student boredom during learning in the classroom, impact on outcomes learning, and their ability thinking especially highorder thinking skills.

The learning process takes place internally and personal of students, in order for the learning process leads to the achievement of goals in the curriculum so the teacher must plan carefully and systematically a variety of learning experiences that enable changes in student behavior in accordance with what is expected, one example by using Constructivist learning strategy is Inquiry. Inquiry learning is a learning activity that emphasizes the critical and analytical thinking process to seek and find answers a questionable problem (Sanjaya, 2011). Inquiry learning is designed to invite students directly into scientific process, such as observing, questioning, gathering information, associating and communicating. In scientific process, needed approaches and methods learning it can be help students to interact with their social environment, especially with other students so enable students to draw on their own experiences, share strategies and information, respect each other, encourage intelligent ideas, and engage critical - creative thinking (Zanzibar & Surtikanti, 2015).

Inquiry as a process to seeking or understanding information, students are required to find concepts through the necessary instructions a teacher. The guidelines are generally guiding questions. In addition the questions, a teacher can also give explanations as necessary when the student will conduct an experiment, such as an explanation of how to experiment. Inquiry means is a series of learning activities maximally engage all students' ability to search and investigate systematically, critically, logically, analytically, so that they can formulate their own findings with confidence. Michalopoulou (2014) stated, creativity is important to be applied as a teaching approach because the children need to understand some things related to their emotions, imagination and cognitive. A creative children are often perceived as class threats because they ask too many questions for teacher. Therefore, one of the learning strategies to facilitate a creative of student is use the inquiry. The research question is whether Inquiry can train creative thinking skill of students at junior high school level?

B. Method

The participant is students of MTs Nurussalam Tetebatu in Year 2014/2015 first grade which amounted 50 students, divided into control class (24 students) and experiment (26 students). To measure students' creative thinking skill, used

questions in form description by referring indicators of creative thinking skill that is fluency, flexibility and originality. The analysis data using descriptive statistics because researchers only want to describe the sample data and do not want make conclusions that apply to the public (Sugiyono, 2011). The data analyzes were: 1) creative thinking ability for control and experiment class, 2) indicator of creative thinking ability for control and experiment class, and 3) indicator of creative thinking ability based on gender specific experiment class. To know the creative thinking ability used the gain formula (d) and the criteria from Hake (Savinem & Scott, 2002) as follows:

Ket: g = score gain

$$g = \frac{(s_{post} - s_{pre})}{(s_{max} - s_{pre})}$$

S_{post} = posttest score

S_{pre} = pretest score

S_{max} = maximum score

The category creative thinking skills

No	Gain score	Category
1	$g < 0,3$	Low
2	$0,3 \leq g \leq 0,7$	Average
3	$g > 0,7$	Upper

C. Finding and Discussion

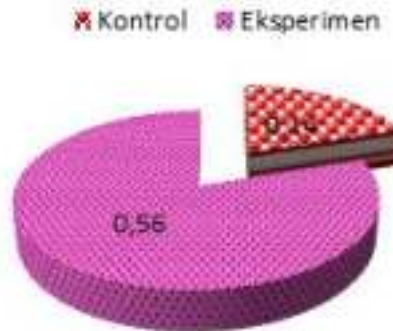
A general understanding for developing high order thinking should consider student engagement with learning tasks that exceed both Blooms' level of cognition 'understands', to encourage implementation, analysis, synthesis and evaluation activities in information processing. High order thinking skill includes thinking skills that required more than remembering or memorizing information. There are two ways to teach high order thinking skill that is (1) Infusion approach refers to the teaching of high order thinking skill in the specific content; Teachers integrate high order thinking skill explicitly with the teaching of certain content, and (2) separate subject approaches are high order thinking skills as general strategies used across the subject domain (not content specific; high order thinking skill teaching teachers as a set of skills or strategies to be gained (Yen & Halili, 2015).

Presseisen (Costa, 1985) suggests there are two thinking skills: (1) the basic of thinking consisting of: (a) connect cause and effect, (b) transforming, (c) finding relations, and (d) provide qualification, and (2)) complex thinking that includes: (a) problem solving, (b) making decisions, (c) critical thinking, and (d) creative thinking. The thinking skills that occur in the students are still in the category of low order thinking skills which cover remembering, understanding, and applying.

Result of Creative Thinking

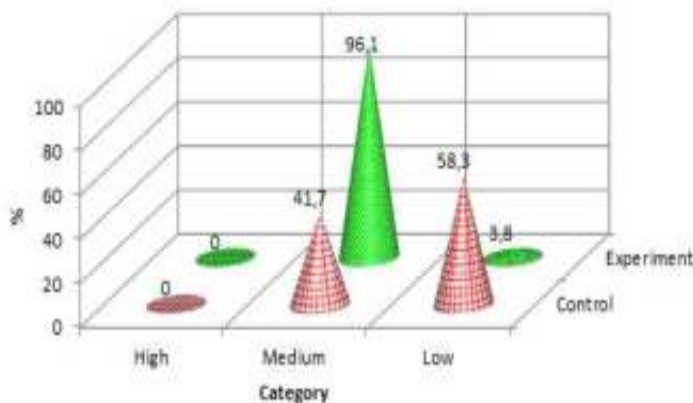
The Children develop dispositions for learning such as curiosity, cooperation, confidence, creativity, commitment, enthusiasm, perseverance, imagination and reflexivity, when they participate in based on investigation are rich and meaningful,

survive and feel satisfaction of achievement, persist when they looking for a difficult task (Michalopoulou, 2014). The application of inquiry learning has an impact on the experimental class (which uses inquiry) compared to the control class. The comparison of the gain scores presented in pie chart form (figure 1).



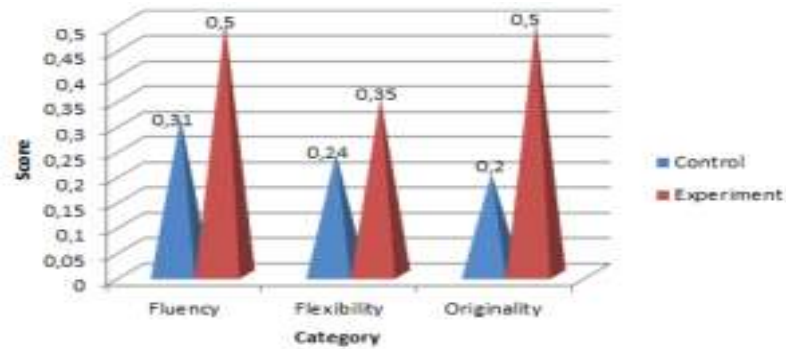
Picture 1. Gain score of creative thinking skill of control and experiment class.

The result of creative thinking that's obtained then is categorized into low, medium, and upper categories. The medium and low categories that look good in experimental and control class. Creative thinking categories are presented in graphical form (figure 2).



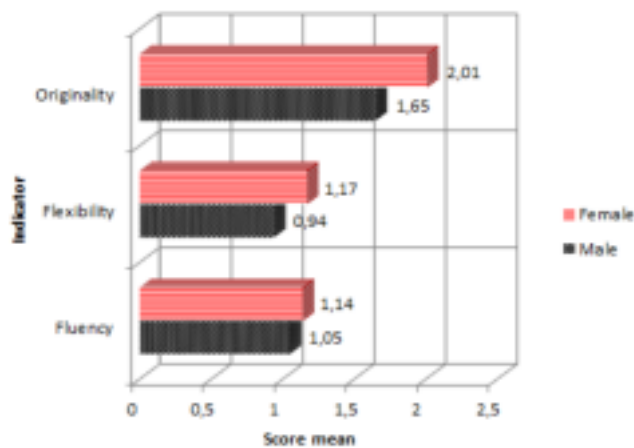
Picture 2. Category of Creative Thinking

The results of this research have been supported by: 1) Nurhadi, et al (2016) about inquiry that is inquirybased learning can improve students' creative thinking skill rather than using conventional learning. 2) Zanzibar & Surtikanti (2015) found the average of students' creative thinking skill before given learning 17, 13 and after given guided inquiry study 35,74 with include medium category to 0,59 which included in medium improvement category. 3) Longo (2011) states that the use of inquirybased learning can help students become more creative, more positive, increase curiosity, and be motivated. The existence of creative thinking skills in inquiry learning can improve students' creative thinking skills, as evidenced by the improvement of each indicator creative thinking skills. The score of gain creative thinking is presented in graphical form (figure 3).



Gambar 3. The result of indicator creative thinking

Figure 3 shows that the classes taught by inquiry are higher gain in each indicator creative thinking, the same is done by Zanzibar & Surtikanti (2015) with the following results: In fluency, N-gain of 0.59; Students can spark a lot of ideas or answers to a solving the problem. On flexibility, N-gain is 0.59; Students can generate ideas, answers or questions that variety and can see the problem from different perspectives. On originality, the N-gain is 0.52; Students are able to create new expressions as a result of their own thinking and think of usual ways of expressing themselves. The next creativethinking scoring is calculating the indicators ofcreative thinking of male and female students in classes taught by inquiry, the gain scores obtained are presented in graphical form (figure 4).



Picture 4. skor berpikir kreatif pada siswa laki-laki dan perempuan pada kelas eksperimen

A research findings presented in Figure 4 are in line with the results of the Siddiqi (2011) states that, male students get a slightly higher score compared to female students in each indicator of creative thinking. The scores are: Fluency; Male students 37.57, female students 37.32. Flexibility; Male students 32.65, female students 31.67. Originality; Male students 6.84, female students 5.07. When viewed in terms of the brain, the difference between the structure and function of brains men and women has major implications for the theory of education. Girls tend to use brain areas devoted to verbal and emotional functioning, while boys generally use areas of the brain directed toward spatial and mechanical tasks, the male brain needs to recharge and reorient by including what the brain scientists call as a state of rest (Zaidi, 2010).

The creative thinking is not skill to produce or create something that does not yet exist, but skill to generate new ideas by combining, altering or smearing existing ideas (Anwar, et al., 2012). Munandar (2012) says, operational creative thinking skills can be formulated as an ability that reflects smoothness, flexibility, and originality in thinking, as well as its ability to elaborate (develop, enrich, detail) an idea. The indicators of creative thinking skills measured in this study are five indicators: 1) fluency, 2) flexibility, 3) originality, 4) elaboration, and 5) evaluation.

The inquiry learning is one of the learning models which are suitable with student effectiveness. The inquiry process uses students' intellects to gain knowledge of how to find, organize concepts and principles into an important set of values according to the students. The investigation not only develops the intellectual ability but the potential of all students, including the emotional and skill development. The inquiry learning gives students the opportunity to build their own knowledge, using the concepts that have been held to solve problems encountered. Activities of students to observe, guess, and conclude through group activities and communicate the results of inquiry with more emphasis on learning. The main goal of inquiry learning is to help students develop intellectual thought and discipline by asking questions and getting answers based on curiosity (Andrini, 2016). Some of the things that characterize inquiry learning: 1) Inquiry learning emphasizes maximal student activity to seek and find, 2) All activities undertaken by students are directed to find and find their own answer from something in question, so that expected to grow self-confidence, and 3) The goal of inquiry learning is to develop systematic, logical, and critical thinking skills, or to develop intellectual ability as part of mental processes (Sanjaya, 2011).

D. Conclusion

Inquiry learning can be used as a learning model to train students' creative thinking skills; it can be seen from the experimental and control classes scores in both male and female students. In the experimental class obtained a gain score (0.56) while the control class (0.14). The result of creative thinking is seen from gender; Obtain score gain control class of male students (0,21), female student (0,27). In experimental class; Male students (0.47) and female students (0.44). a result of indicator creative thinking: control class; Fluency (0.31), flexibility (0.24), and originality (0.2). Experiment class; Fluency (0,5), flexibility (0,35), and originality (0,5). Especially in the experimental class, male students are more creative than female students, this can be seen from the result of indicator creative thinking that is male students; Fluency (0,5), flexibility (5,5), and originality (5,5). Female student; Fluency (0,5), flexibility (0,35), and originality (0,5).

Reference

Andrini, V. S. (2016). *The Effectiveness of Inquiry Learning Method to Enhance Students' Learning Outcome: A Theoretical and Empirical*. Review Journal of Education and Practice. 7 (3), 38-42.

- Anwar, M. N., et al. (2012). *Relationship of Creative Thinking with The Academic Achievements of Secondary School Students*. International Interdisciplinary Journal of Education. I (3), 44- 47.
- Costa, A.L. (1985). Teacher Behaviors that Enable Student Thinking (in Costa, A.L (Eds), *Developing Mind: A Resource book for teaching thinking*. Alexandria ASDC.
- Longo, C.M. (2011). *Designing Inquiry-Oriented Science Lab Activities*”, Middle School Journal. 43 (1), 6-15.
- Michalopoulou, A. (2014). *Inquiry-Based Learning through the Creative Thinking and Expression in Early Years Education Creative Education*. 5, 377-385.
- Munandar, U. (2012). *Kreativitas dan Keberbakatan: Strategi Mewujudkan Potensi Kreatif dan Bakat*. Jakarta: Penerbit PT. Gramedia Pustaka.
- Nurhadi, et al., (2016). *Implementation of Inquiry Based Learning to Improve Understanding the Concept of Electric Dynamic and Creative Thinking Skills (An empirical study in Class IX Junior High School Students State 4 Kendari)*. International Journal of Science and Research (IJSR). 5 (3), 471-479.
- Sanjaya, W. (2011). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Penerbit kencana Prenadamedia Group.
- Savinem, A & Scott, P. (2002). *The Force Concept: A Tool For Monitoring Student Learning*. Physics Education. 39 (1), 45-42.
- Siddiqi, S. (2011). *A Comparative Study Of Creativity Among Boys And Girls Of Class VII*. Half-Yearly Journal Of Educational Research Indian Educational Review. 49 (2), 5-14.
- Sugiyono. (2011). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, dan R & D)*. Bandung: Alfabeta Bandung.
- Yen, T.S., & Halili, S.H. (2015). *Effective Teaching Of Higher-Order Thinking (HOT) In Education*. The Online Journal of Distance Education and e-Learning. 3 (2), 41- 47.
- Zaidi, Z.F. (2010). *Gender Differences in Human Brain: A Review*. The Open Anatomy Journal. 2, 37-55.
- Zanzibar, M. & Surtikanti, H.K. (2015). “Penerapan Model Pembelajaran Inkuiri Terbimbing Melalui Kegiatan Field Trip ke Bangka Botanical Garden(BBG) Untuk Meningkatkan Keterampilan Berpikir Kreatif Siswa”. *Prosiding Simposium Nasional Inovasi dan Pembelajaran Sains 5 (SNIPS 2015) 8 dan 9 Juni 2015*. Bandung - Indonesia.



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