

## **The Influence of Kinesthetic Intelligence and Creativity on The Ability of Solving Problems of School Basic Students**

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### **Abstract**

*This study aims to determine: (1) the effect of problem-solving ability among students who have high and low kinesthetic intelligence. (2) the influence of problem solving ability between students who have high and low creativity. This study was conducted by Quassy experiment. The sampling technique used was cluster random sampling, in order to obtain the fourth grade as the experimental group. Technique of collecting data using questionnaire test. Data of kinesthetic and creativity intelligence was obtained by using questionnaire, while data of problem solving ability was obtained from student performance observation. Data analysis using parametric test (t test). The results showed that there is an influence of problem solving ability among students who have high and low kinesthetic intelligence, as well as creativity. There is influence of problem solving ability between student with high and low creativity.*

*Keywords: Creativity, Kinesthetic Intelligence, ability to solve problems.*

### **INTRODUCTION**

Education is a conscious and planned effort to create an atmosphere of learning and learning process so that learners actively develop their own potentials so that they have spiritual strength, intelligence, personality, noble character and skills needed by him, society, nation, and state (UU No. 20 of 2003 ). Thus, in the learning process must involve students actively and not only emphasize the cognitive aspect but also on the psychomotor and affective aspects.

People's expectation on improving the quality of education in Indonesia is getting bigger. The rapid advancement of science and technology will be able to form a strong and solid learner character that is believed to be important and absolutely owned by students to face the challenges of future life. People also hope that there will be efficiency, productivity, effectiveness of quality and usefulness of the results in the

implementation of learning process. But it turns out the process of implementation of learning in the classroom faced with problems that hinder the success of the learning process. In the process of learning so far, students tend to sit, be quiet and just listen without providing a response relevant to the learning materials. Passive way of learning such as this hampers the process of achieving mastery of learning materials. Children are less encouraged to develop thinking skills. The expected learning is innovative learning, relevant to the needs and the active role of the students in learning. Innovative learning approach centered on the student (*student centered*) and associated with the problems of everyday life.

The process of learning in the classroom is still directed to the child's ability to memorize information, forced to remember and hoard information without being required to understand the

information he or she remembers. Our education is less directed to build and develop the character and potential of students. In other words the educational process has not been directed to form intelligent human beings, have the ability to solve life problems and have not been directed to form a creative and innovative human.

One of the strategic efforts that has been done by the Indonesian government to improve the quality of education in Indonesia is to pass Law No. 20 of 2003 on National Education System. Article 3 of the Act states that education aims at the development of the potential of learners to become human beings who believe and fear Allah Almighty, have a noble character, healthy, knowledgeable, capable, creative, independent and become citizens of democratic and responsible. The government through related institutions has also formulated and perfected the guidelines for the implementation of education known as the Education Unit Level Curriculum (KTSP) in 2006.

The substance of KTSP emphasis is creating an effective learning system. According to Mulyasa (2004: 19) effective learning is characterized by an attitude that emphasizes the active learning of students. Furthermore, Mulyasa explained that effective learning emphasizes on how learners can learn and through teacher creativity, classroom learning becomes a fun activity.

The principle of the implementation of education is that students actively take part in teaching and learning activities. Students must be active to have experience, among others, by making hypotheses, predicting, testing hypotheses, manipulating objects, solving problems, seeking answers, describing, researching,

dialogue, reflection, expressing questions, expressing ideas and creating new frameworks of understanding so that there is development think. A genuine study will occur when students reflect, solve conflicts of understanding, and always update the level of incomplete thought (Fosnot, in Paul Suparno: 13).

One measure of the success of teaching and learning activities can be seen from the acquisition of student values on each subject taught. In science learning is often the result of student learning is still low, there are still many students whose value is below standard or known as Minimum Exhaustiveness Criteria (KKM). In the subject of dynamic electricity often students have difficulty in understanding, applying, analyzing and finding electrical concept.

Efforts to support student success in learning need to be done with attention to creativity and kinesthetic student's intelligence. Creativity can be developed by giving trust, free communication, self-directed and less strict supervision. In teaching and learning activities of children who are creative will be able to find the problems and be able to solve them as well. Teachers need to give creative children a wide opportunity so that their talents and interests can develop according to their potential. According to Utami Munandar (2007: 71) creative personal characteristics are a broad and deep curiosity, often asking good questions, giving a lot of ideas or suggestions to a problem, being free in expressing opinions, having a deep sense of beauty, In one area of art, able to see a problem from various facets or point of view, has a great sense of humor, have imagination and original in the expression of ideas in problem solving.

Kinesthetic intelligence (*bodily-kinesthetic*) relates to the ability to process information through sensations in the body (Julia Jasmin, 2007:25). According to Gardner (2003: 191) characteristics of children who have kinesthetic intelligence, among others, more quickly receive information if they engage in activities, activities that attract attention or use the whole body to express themselves, they are happy with physical movements and can not stay silent for a long time and Love to build something.

For children with kinesthetic intelligence, a learning approach through experiences using models or models, working in a laboratory or playing while learning is certainly more fun. The teachers certainly pay attention to this aspect of kinesthetic intelligence when implementing a learning process that utilizes the laboratory so that it can be done optimally. Learning in the laboratory will provide a learning experience for students. Through learning by optimizing the laboratory, students will be more free in investigation to find the concept independently. This will help students understand, investigate and find concepts.

## METHODS

The experiment was conducted by using a quasi-experimental method (*Quasi experimental research*). This method is used because many of the research subjects that can not be controlled or controlled (Darmadi, 2011: 37).

The population in the study were all students of SDN Gunungsari. The sampling technique used *cluster random sampling* taken from all students of SDN Gunungsari consisting of one class, the class IV as an experimental class.

Data collection techniques used in this study using test methods and non-test methods. The test method is used to obtain data of problem solving ability seen from kinesthetic intelligence and student creativity. Data collection of kinesthetic and creativity intelligence was done by using questionnaire, while data collection about problem solving ability was done by observing / observation on student performance. Amgket problem used before used to retrieve research data, tested first to know the quality of the question. The feasibility of the instruments used in this study is conducted test of feasibility tested with statistics include validity test, reliability test.

The purpose of this study is to determine the level of significance kinestetik intelligence and creativity of students to problem-solving ability. The requirement of statistical data to be tested using the t test is the data distribution should be normal and homogeneous. The prerequisite test was performed before the equilibrium test with t-test, prerequisite test using Kolmogorv-Smirnov test used for normality test whereas in homogeneity test used Levene's test.

## RESULTS AND DISCUSSION

### 1. Results Data analysis Problem solving ability

Students' ability to solve problems is obtained from observational data on student performance. The student performance is manifested in the work of making simple electrical circuits. The indicators used to determine the problem solving ability are 1) experimenting with mechanical objects, 2). Like trying continuously, 3). Dare to try new things, 4). Describes an image. The results of observations on student performance on the four indicators are

scored and grouped in the category of high and low problem solving skills. The high ability category in solving the problem is the score group that reaches greater or equal to the average, while the low ability category in solving the problem is the group of students with scores smaller than the average.

The highest score in problem solving ability reaches the perfect number that is 100 and this figure is 4 students, while the lowest score is 62,50. Number of students by category of problem solving ability based on high category as many as 24 students and low category as many as 32 students.

All the observed data of problem solving ability were analyzed by using parametric analysis of t test.

## 2. The results of the data analysis Creativity

Creativity data related to components 1) curiosity, 2) Imaginative, 3) Challenged by plurality, 4) Dare to take risks and 5) Respect. The components of creativity are described in the indicators as stated in the attached questionnaire of creativity. Questionnaire creativity filled by 23 students of class IV.

Student questionnaire results are grouped into high creativity categories and low creativity categories. Creativity is high if the score is greater or equal to average, while the creativity category is low if the score is lower than the average. The highest student creativity scores got 96 points and the lowest score was 51.6. Some statistical data related to creativity categories can be seen in the following table.

Table 2. Statistical data of Creativity Category

Category	N	Mean	SD	Max	Min
Low Creativity	31	84.84	8.194	100	75
High Creativity	25	82.42	9.858	100	63

All creative questionnaire results were analyzed using parametric analysis (t test). The results of data analysis showed that the number *Asymp.Sig.* or *Asymptotic Significance (2-tailed)* of 0.00. This means that the probability of student creativity is smaller than the 0.05 significance level meaning that there is a significant influence in solving the problem between students who have high and low creativity. The results of this study also support the theory put forward by Treffinger in the main munandar which states that the creative person is usually more organized in action by considering the problems that may arise. Creative people have a tendency to be more interested in complicated matters.

## 3. Result of data analysis of Kinetetic Intelligence Questionnaire

Data Kinesthetic Intelligence deals with components 1) Moves actively, 2) Faster receives information when engaged in activities, 3) Can not stay idle, 4) Enjoy nature and environmental activities. The components of the Kinesthetic Intelligence are described in the indicators as set forth in the kinesthetic intelligence questionnaire in the appendix. Similar to the creative questionnaire, a kinesthetic intelligence questionnaire was also filled by 23 fourth graders.

Results of kinesthetic intelligence questionnaires were also grouped into high kinesthetic intelligence categories and low kinesthetic intelligence categories. Category kinestetik high intelligence if the questionnaire score is greater or equal to the average, while the kinesthetic category of intelligence is low if the questionnaire score is lower than the average. The highest student kinesthetic intelligence score reached 92 and the lowest score was 55.8. Statistical data related to

the kinesthetic intelligence category can be seen in Table 3. below.

Table 3. Statistical Data of Kinesthetic Intelligence category

Category	amount	Average	SD	Max	Min
Kec. Low Kinesthetic	30	82.23	9.97	100	63
Kec. High Kinesthetic	26	84.96	8,052	100	75

The kinesthetic intelligence questionnaire data was then analyzed using parametric analysis (t test). The results of data analysis showed that the number *Asymp.Sig. or Asymptotic Significance (2-tailed)* of 0.01. This number means that the probability of kinesthetic intelligence of students is smaller than the number 0.05. So it can be concluded that there is a significant influence in solving problems between students who have high and low kinesthetic intelligence. Consistent with Gardner's theory of intelligence in multiple intelligences which states that students are best acquired knowledge when it is associated with their own abilities and interests. The results of this study also fit the kinesthetic intelligence theory in that people who possess kinesthetic intelligence process information through sensations perceived by their bodies. Therefore a person's kinesthetic intelligence level will affect the problem solving ability.

## CONCLUSIONS

1. The results showed that the level of creativity of students affects the ability to solve Problem with significance 0,00 m.
2. The results also showed that kinesthetic intelligence level of students affects the ability to

solve the one-time, with a 0.01 significance.

3. Efforts to improve the quality of education in Indonesia in general and the learning process in particular, is expected to give attention to children's creativity and kinesthetic intelligence in various ways to enable learners.
4. One way to enable learners can be done by familiarizing the pattern of student performance learning.

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