Association of physical body-kinesthetic (Multiple Intelligences) mobility with student learning outcome

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Abstract. Multiple Intelligences defines intelligence as the ability and skill of resolving problems, creating valuable products in one or more environments, cultures and communities. So that with multiple intelligences can affect the ability of students to learn specifically in learning Biology. This research aims (1) To know the relationship between students who have kinesthetic ability to learn Biology subjects (2) to know the difference in student grades based on kinesthetic indicators. The method used was the correlational method using 1 class as an experimental class as well using product moment formula. This research was held on May 29 until June 10, 2017 sample taken in class XI MIA I with purposive sampling technique. SMAN 2 Bandar Lampung mission is to develop the potential of earners Multiple Intelligences including intelligent motion. Refers to the book Suharsimi Arikunto consists of 45 statements based on the indicator of kinesthetic ability, consisting of 5 indicators to look for differences in the value of each indicator using a one-way Anova Test. Collection of student value data on the pick up based on final exam results. The significant value between kinesthetic intelligence and the learning outcomes based on the analysis of the two interconnected interpretation is sufficient.

1. Introduction

The public view of intelligent students is still relatively narrow because there are those who think that people are intelligent only on certain subjects such as mathematics and science. This community view that made Howard Gardner a psychologist from Harvard University raised the theory of Multiple Intelligences. Education is very urgent for every student because education can guide and direct all aspects and development of students who are born with the divine provision of sacred[1]. Every human being has the advantages and disadvantages given by Allah SWT to every human being. As it is in the Quran: “Surely, we have created man in the most appropriate form” QS. AT-Tiin: 4) [2].

From this surah, it appears how God's attention in creating man in his most appropriate form. Allah SWT created all things as well as to give reason and mind so that people are different from other creatures, God's attention to man is seen in the creation and body structure is worth compared to Other
creatures, both very detailed and careful physical arrangement, unique and intricate composition, and a remarkable wondrous[3].

According to Gardner's understanding of Society intelligence is still too narrow. Most people say that students are said to be intelligent or clever when the math or language value is 8-10 (scale 1-10) or students who have a high IQ test score. It was not justified by Howard Gardner A Harvard University psychologist who expressed intelligence is an ability, with the process of completeness, which is capable of addressing the specific content of the world. Every human being has a lot of intelligence, according to Gardner's statement that one's intelligence can be seen from many dimensions (multidimensional)[4].

Intelligence in question is a compound intelligence or often known as Multiple Intelligences. Howard Gardner as a Multiple Intelligences expert defines intelligence as the ability and skill of resolving problems, creating valuable products in one or more environments, cultures and communities. skills are activities related to the nerve veins and muscles (neuromuscular) that are lazimya appear in physical activities such as writing, typing, sports and so on[5].

This research focuses on students of XI grade MIA 1 at SMA Negeri 2 Bandar Lampung who have kinesthetic intelligence to seek his relationship with the results of biological learning. High school students 2 Bandar Lampung are many who continue to attend their favorite colleges in Indonesia, even many of them who continue their higher education abroad. Researchers also see the similarities the mission developed SMA Negeri 2 Bandar Lampung is developing the potential or intelligence of learners (Multiple Intelligences) namely intelligent language, intelligent logic, intelligent figure, intelligent image, intelligent music, intelligent Motion, intelligent associating, intelligent self and intelligent nature.

Researcher chose the School of SMA Negeri 2 Bandar Lampung as a place for research, but also SMA Negeri 2 Bandar Lampung is a school that is internationally-standard and became a favorite schools in Lampung so researchers pay attention to the vision and mission that is carried into one consideration in the study. At the time of the interview at SMA Negeri 2 Bandar Lampung with Mr. Edi Pristiyono one of the teachers of biological subjects said that the absence of Multiple Intelligences research that is existing at SMA Negeri 2 Bandar Lampung. Due to the lack of research intelligences, researchers wanted to research the study by spreading Multiple Intelligences to the students, containing questions about students ' habits and what they To know each student has an intelligence in his field.

The result of intelligence mapping in class XI MIA 1 found that as many as 13 students have kinesthetic intelligence from 40 students, most of the students when asked to continue to college want to take medical majors, police academy, architectural engineering and Japan. Researchers think that the profession is not separated from the ability of body movement (kinesthetic). The intelligence they have made it possible to become a professional surgeon doctor is very difficult the professional's likelihood is found in Howard Gardner's book below:

Kinesthetic Intelligence is the expertise of using the whole body to express ideas and feelings e.g. as an actor, pantomime player, actor, athlete or dancer and agility using one's hand to create or Change something for example, a craftsman, sculptor, mechanic and surgeon. This intelligence includes certain physical skills such as coordination, balance, agility, strength, flexibility and speed, as well as capacities of proprioceptif, tactile and heptic capacities[6]. Kinesthetic Intelligence – The body allows one to move objects and subtle physical skills. This is clearly visible in the self-athlete, dancers, surgeons and artists who have technical skills [7].

Kinesthetic Intelligence is intelligence that relates to the ability of a person to exercise by moving the limbs partially or completely. Examples of dancers, athletes, artists. These are: (1) Prominent achievements in the field involving motion, both dance and sports; (2) Happy moves and activities involving physical motion; (3) Enjoy doing field work; (4) Love to disassemble toys

According to previous research kinesthetic Intelligence is a plural intelligence related to sensitivity and skill in controlling the coordination of body movements through rough and smooth motor movements[8]. In this case, include special skills such as coordination, balance, strength, flexibility
and speed. Muhibbin Syah in his book, "Every student at the time of his/her is entitled to an opportunity to achieve a satisfactory academic performance. But from the daily reality it seems obvious that the student has a difference in terms of intellectual abilities, physical abilities, family background, habits and a learning approach is sometimes very striking between a student with other students." Moreover, learning difficulties can also be experienced by students who are on average (normal) due to certain factors.

2. Methods
This research was a qualitative. The research was conducted in class XI MIA 1 SMAN 2 Bandar Lampung. The population in this study were students of class XI MIA SMAN 2 Bandar Lampung which consists of 10 classes totaling 447 students. Researchers using purposive sampling method. In this study, the authors took samples based on observations in the field to students who are considered to have a kinesthetic intelligence through Multiple Intelligences questionnaire in class XI MIA 1 of 40 students. Researchers taking one main group and intervene in it throughout the study (Pre Experimental). The variables in this study consisted of two variables: (1) Independent Variables. Independent variables are variables that affect or called with the variable X. In this study, the independent variables are kinesthetic abilities (Multiple Intelligences); (2) Dependent Variables. The dependent variable is the variable that is affected by the treatment of the independent variable is called the variable Y. In this case, the dependent variable is the result of studying Biology students [9].

To collect the data that will be needed in this study, researchers use data collection techniques such as poll, observation, interviews, and documentation. The instruments to be used in this research are Multiple Intelligences intelligence instruments and a Kinesthetic intelligence poll instrument. The score value of the measurement was shown in Table 1.

| No. | Answer                | Value |    |    |
|-----|-----------------------|-------|----|----|
| 1.  | Strongly Agree (SS)   | 4     | 1  |
| 2.  | Agree (S)             | 3     | 2  |
| 3.  | Disagree (TS)         | 2     | 3  |
| 4.  | Strongly Disagree (STS)| 1    | 4  |

The given value is one to four for the response very concur, agrees, disagrees, strongly disapproving, depicting a very negative position to a very positive position. The scale measurement level in this study uses intervals. The neutral response was deliberately eliminated, so the respondent could show his or her attitude towards the statement submitted by the questionnaire. This is done to avoid mistakes in the method of Likert scale that is the fault of intermediate tendency.

The interval Data can be analyzed by calculating the percentage of poll responses on each item using the following formula:

\[ P_s = \frac{S}{N} \times 100\% \]

Description:

\[ P_s = \text{Percentage} \]
\[ S = \text{Number of respondent responses in 1 item} \]
\[ N = \text{number of ideal values in an item}[10]. \]

The analysis of the correlation of data using product moment. Correlation of product moment is a measure used to test the hypothesis of relationships between one independent variable and one dependent variable. To facilitate the interpretation of the strength of the relationship between the two variable authors gives the following criteria: 0 : No correlation between two variables; > 0 – 0.25: low
correlation; >0.25 – 0.5: Enough correlation; >0.5 – 0.75: Strong correlation; >0.75 – 0.99: Very strong correlation; 1: Perfect correlation.

When we take a test step the average difference is one by one (with T tests) will eat. Time, power is a lot. In addition, we will face a big wrong risk. For that, it has been found a way of analysis that contains errors smaller and can save time and energy ie with ANOVA (Analysis of variances). The calculations in ANOVA are based on variance, although the goal is to test some of the average differences[11].

3. Results and Discussion

The data used in this study are quantitative data in the form of the kinesthetic ability of Multiple intelligences and learning outcomes of grade XI students Mia 1 semester 2016-2017 school year, class XI MIA 1 as own class 40 students. Each student get a poll of kinesthetic ability (Multiple Intelligences) that has been installed online using the application My.Personality.info which has been used approximately 2 million people can be guaranteed because it is a Design of the experts who contain 80 questions.

The distribution of the final poll containing the statements of kinesthetic ability of the students with a total of 45 statements and uses Likert Sekala. After that, it is analyzed to get the result that will be used to look for the relationship between kinesthetic ability and biological learning outcomes. Results of the following kinesthetic poll sequences based on the most selected indicators in the Table 2.

| No. | Indicator | Total |
|-----|-----------|-------|
| 1   | Regulate or manage reflex | 163   |
| 2   | Concerned for the cross-section of the body | 162   |
| 3   | Regulate or manage the movement planned | 150   |
| 4   | Expanding awareness through the body | 144   |
| 5   | Improving the functioning of the body | 141   |

Scores obtained in each indicator kinesthetic abilities of students based on the above table set up or manage your reflexes to get the highest score. The retrieval of data learned in doing by taking the results of school Final Exam Biology to Teachers of biology subjects class XI MIA 1 SMAN 2 Bandar Lampung odd semester, to ensure that the value of final exam is completely valid and real truth Researchers directly monitor the process of the final exam work done by students XI MIA 1 on Monday on 5 June 2017 at 7.30-09.30.Data retrieval kinesthetic ability and the ability of Multiple Intelligences done by spreading the questionnaire. Questionnaire is divided into two, first perform Multiple Intelligences questionnaire's ability to analyze the data to know each capabilities later in distributing questionnaires kinesthetic ability. The results of the average value of each final exam value and sorted by the highest average value (Table 3).

| No. | Intelligence | Rated Average Life | Ranked |
|-----|--------------|--------------------|--------|
| 1   | kinesthetic  | 82.3               | 5      |
| 2   | verbal       | 85.1               | 3      |
| 3   | Musical      | 84                 | 4      |
| 4   | logical      | 81.6               | 8      |
| 5   | intrapersonal| 86                 | 1      |
| 6   | Naturalist   | 82.3               | 6      |
| 7   | Visual       | 86                 | 2      |
| 8   | interpersonal| 82                 | 7      |
Testing normality test conducted on questionnaires and learning outcomes in the classroom experiment used Kalmogorov test using SPSS 16.0. Initial capability data normality test was conducted in order to determine whether the initial capability test scores obtained from the population that is normally distributed or not the hypothesis is as follows:

\[ H_0 \]: The population derived from normal distributed population

\[ H_1 \]: The population is not derived from normal distributed population.

Based on calculations using the computer program SPSS software version 16.0, the value of the significance of a kinesthetic ability and learning outcomes. Normality test calculation results can be seen in the Table 4.

| Information        | Kolmogorov-Smirnova | Shapiro-Wilk |
|--------------------|---------------------|--------------|
|                    | statistics          | Df | Sig. | statistics | Df | Sig. |
| kinesthetic         | .135                | 40 | .064 | .936       | 40 | .026 |
| learning outcomes   | .136                | 40 | .060 | .942       | 40 | .041 |

Based on Table 4, it can be seen that the significant value of kinesthetic ability of 0.064 > 0.05 and in learning outcomes 0.200 > 0.05. Normality test results show that H0 is accepted, so that the kinesthetic abilities and learning outcomes are both derived from normally distributed population.

### Table 5. Correlation Table Kinesthetic Ability and Learning Outcomes

| Kinesthetic Ability | Pearson Correlation | Learning Outcomes |
|---------------------|---------------------|-------------------|
| Sig. (2-tailed)     | .368 *              |                   |
| N                   | 40                  | 40                |
| Pearson Correlation | .019                |                   |
| Sig. (2-tailed)     | .019                |                   |
| N                   | 40                  | 40                |

*. Correlation is significant at the 0:05 level (2-tailed).

The result of calculations using SPSS 16.0 in get that it can be said Sig Denied, it means that there is a relationship of significance kinesthetic abilities on learning outcomes Biology subjects MIA first grade students in SMAN 2 Bandar Lampung.\( Sig_{(0.368)} > a_{(0.05)}H_0 \) (Table 5).

### Table 6. Anova Test

| Score            | Sum of Squares | Df | Mean Square | F    | Sig. |
|------------------|----------------|----|-------------|------|------|
| Between Groups   | 22.764         | 4  | 5.691       | .272 | .894 |
| Within Groups    | 732.011        | 35 | 20.915      |      |      |
| Total            | 754.775        | 39 |             |      |      |

The results of calculations using in SPSS get that it can be said \( Sig_{(0.368)} > a_{(0.05)}H_0 \) Accepted, meaning that there is no difference value of Biology students have kinesthetic intelligence based indicators (Table 6). Indicators kinesthetic intelligence sourced from books Suharsimi Arikunto.
entitled foundations of educational evaluation amounting to 5 indicators that regulate or manage reflexes, regulate or manage the movement planned, Expanding awareness through the body, Care for the cross-section of the body and enhances the function of the body before spread this questionnaire has been tested for validity and reliability with the validator from the department of Biology education is Mrs. Nukhbatul Bidayati Haka, M.Pd as a linguist with the father Cahniyo Wijaya Kuswanto, M.Pd as a sports lecturer Teacher Education department Raudhatul RA.

Results of analysis using SPSS , using the formula of one way ANOVA showed that the difference in the value of each respective indicator for each indicator are similar in student kinesthetic intelligence. In the calculation to find differences in the value of each respective indicator rate, the total value of the questionnaire using the formula x 100% then the next step to group students based on indicators kinesthetic. The last step is to test the track ANOVA analysis using SPSS 16.0

The correlation test uses the formula of product moment using SPSS 16.0 program in Get that Sig $\text{Sig}(0.000) < \alpha (0.05)$ so in this case $H_1$ received, meaning there is a significant relationship of kinesthetic ability to study outcomes of biological subjects Grade XI student MIA 1 at SMAN 2 Bandar Lampung, the fact that there is a meaningful relationship between students who have kinesthetic ability to study results of biology in the even semester of the school year 2016-2017 (Figure 1).

![Figure 1. Students’ intelligence results](image)

In the graph of the average biological value of students with intrapersonal intelligence having the highest average value equal to the students who have visual intelligence, understanding of intrapersonal Intelligence (Intrapersonal Intelligence) is Ability to create an accurate perception of oneself and use such knowledge in planning and directing the life of a person, the type of student who has the interpersonal planning with a well-informed way of learning In the face of the exam with maximum, visual intelligence (Spatial Intelligence) evokes the capacity to think in three dimensional ways as can be done by sailors, pilots, sculptors of painters and architects.

Students who are actively engaged in their own learning develop during the process of manipulating knowledge information or when learners using the knowledge manipulation results in solving the Issues or problems solving faced by learners. The combination and degree of intelligence of each participant Students are different and very rarely operate independently.

4. Conclusion

Based on the results of data analysis and previous discussion, it can be concluded that: (1) There is a influence between kinesthetic intelligence and student learning, meaning that someone with kinesthetic intelligence gets high results in the eyes Biology lessons. (2) There is no difference in the biological value of students based on the kinesthetic indicator which is regulating or managing reflex motion, arranging or managing planned motion, expanding awareness through the body, caring for the inter-part of the body and enhancing Body functions.

5. References

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