

# IMPROVING STUDENTS' SCIENCE LEARNING ACHIEVEMENT BY USING "WHOLE BRAIN TEACHING" METHOD IN HUMAN BLOOD CIRCULATE SYSTEM

*(A Classroom Action Research at Fifth Grade of MI Al Istiqomah in the Academic Year of 2016/2017)*

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## **Abstract**

*This research aims to improve students' Science Learning Achievement by using Whole Brain Teaching Method in Human Blood Circulate at fifth grade of MI Al Istiqomah in Academic Year of 2016/2017. This research is a Classroom Action Research of science subject using Whole Brain Teaching Method. The research subject is fifth grade students of MI Al Istiqomah, North Musi Rawas 29 students which are 19 boys and 10 girls. There were 2 cycles with four steps; planning, action, observation and reflection. In this research, the success of learning if 75% of students get a minimum score (KKM). The finding data is analyzed by descriptive quantitative. The result of this research shows that in the 1<sup>st</sup> cycle gets 65,51% of students have a minimum score and in the 2<sup>nd</sup> cycle gets 93,10% of students have a minimum score. Thus, it can be concluded that an application of Whole Brain Teaching method can improve students' science learning achievement of fifth grade students at MI Al Istiqomah.*

**Keywords :** Learning Achievement, Science, Whole Brain Teaching.

## **Introduction**

In fact, Education is one of dynamic and development of human culture manifestation. According to the Law on National Education System (Sisdiknas) No.20 Year 2003 1<sup>st</sup> article is mentioned that Education is a conscious and planned effort to create an atmosphere and learning process so that students can improve their ability to have a religion spiritual, self-controlling, personality, noble intellectual intelligence and skills so they can apply it in their society, nation and state. To reach a goal, Education for students is appropriated with value of life in their society.

Based on the regulation of the National Education Minister No.22 Year 2006 on Content Standard for Elementary and secondary Education, stated that Science is related to look for the knowledge systematically about nature so that Science is not only about mastery of facts, concepts or principles but also about a process of discovery. Education is expected to be vehicle for students to learn themselves their environment so they can apply in their daily life.

Science subject in Elementary school aims to make students have skills such as 1) having greatness of God Almighty based on the existence, beauty and order of the nature of his creation, 2) developing knowledge and understanding of science concept which can be applied in daily life, 3)

developing curiosity, positive attitude, and awareness of correlation among science, environment, technology and society, 4) developing skills to investigate the environment, solving problems and making a decision, 5) improving awareness to maintain, keep and preserve the environment, 6) improving awareness to appreciate the environment and nature as God creation, 7) having a knowledge, concepts, and skills of science as a basic for continuing to Junior High School (Fajar, 2013).

According to the observation that have been conducted by researcher of fifth grade students at MI Al Istiqomah, Musi Rawas Utara, obtained many students who get low scores and they do not get minimum score (KKM). Minimum score of science at MI Al Istiqomah is  $\geq 70$ . It is based on daily examination of science about respiration and digestion system that have low score. There are 5 students of 29 students who get minimum score (17,24%) and 24 others get low score (82,75%).

Facts on the field is found that teaching and learning process have been using active learning but it does not aware about students skills. In group activity, there are still students who involved in learning activity inactively. Moreover, there is not class management who can support students in learning activity so the students cannot be handle because they always disturb their friends and do not pay attention to the teacher. The active students who dominate learning activity in the class and the

passive students do not have enthusiasm in learning activity. So the learning activity can not run effectively because most of students do not get involved in the learning process.

Learning method is a general way of teaching that can be applied to all subjects. Based on Munif Chatibe on his book (2016) stated that learning method can be significance as the way that used to implement of lesson plan in real activity so the learning goal can be reached.

Whole Brain Teaching Method or known as Power Teaching is emphasized on students learning active which involve visual, verbal and kinesthetic style (Widyasari, 2105). In learning activity of Whole Brain Teaching method uses gestures as a meaningful symbolic movements which has a positive and useful meaning to help students understand the materials (Syafitri 2014). *Whole Brain Teaching* is a method derived from the neurolingusitic programming development that make teachers enable all parts of the left and right brain. The main strategy of this method is how to attract students' attention so that they will more focus on learning in the class (Khasan 2015).

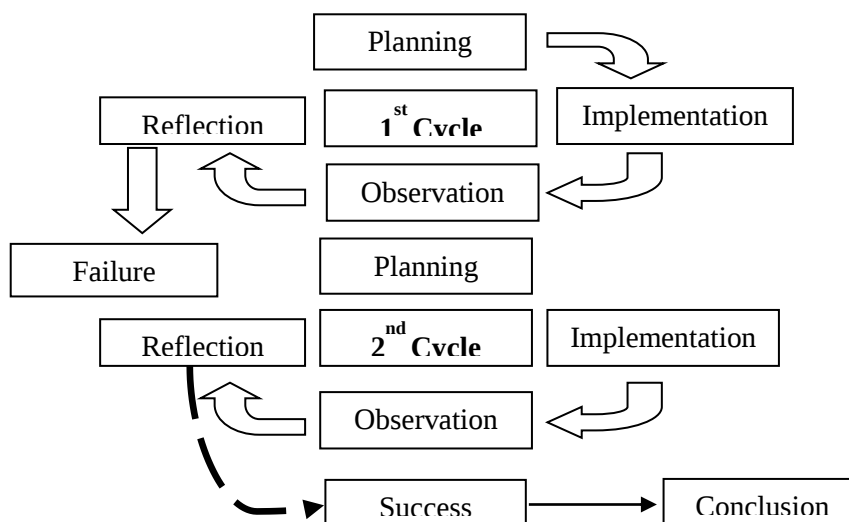
Based on the explanation, the researcher tries to improve students' Science Learning Achievement using Whole Brain Teaching of Human Blood Circulate System of fifth grade students at MI Al Istiqomah, academic years 2016/2017.

## Research Methodology

This research is Classroom Action Research. The subject of this research is fifth grade students at MI Al Istiqomah, Musi Rawas Utara. The action in this research is applying Whole Brain Teaching on Science learning. Students' Learning Achievement is based on learning achievement test on 1<sup>st</sup> cycle and 2<sup>nd</sup> cycle (Quantitative Data) which analyzed by Descriptive Quantitative.

The Classroom Action Research is a research which conducted logically, sistematically, and empirically and reflect on some actions that have been done by researcher. The research is done by arranging the planning until assessment on real activity of teaching and learning process in the class in order to improve learning process (Iskandar, 2012).

The Classroom Action Research can be interpreted as a process of studying learning problems in the classroom through self-reflection to solve the problems by doing various actions sistematically in real situation and analyze each influence of the treatment. According to Musfiquon (2009) the characteristics of classroom action research is using research cycles. Each cycle consist of planning, actions/observation, and reflection as shown at the picture below:



Picture 1. Research Design, Arikunto

The first step of this research is started by planning. In this step, the activity of learning uses Whole Brain Teaching Method. There are:

- 1) Learn about curriculum, choose indicator based on basic competence (KD) of human blood circulate system
- 2) Make a Lesson Plan which using Whole Brain Teaching Method
- 3) Make a realia of human blood circulate system
- 4) Arrange a point of questions based on indicator r
- 5) Make a lesson plan use Whole Brain Teaching
- 6) Arrange the material
- 7) Prepare the tool
- 8) Manage students' chair
- 9) Make questions for evaluation

In the next step is action. The action in this step is learning practice based on the lesson plan. The learning has twice meeting (4 hours of learning) for each hours is about 35 minutes. Observation is conducted by observer to know the finding result, the weakness and obstacle of this research. The last step is reflection. Reflection is conducted based on test result and observation. The result of this reflection is as a basic to find out the weakness and obstacle in cycle I so that the researcher can determine the action which need to conduct in 2<sup>nd</sup> cycle. So the result will be better than before.

The data analysis was conducted to get a conclusion from all data. The analysing data is the result of students' evaluation. The outcomes of students' science learning achievement based on learning achievement in 1<sup>st</sup> and 2<sup>nd</sup> cycle (quantitative data) is analyzed using descriptive qualitative. It is formula equation that used to measure the average value, the percentage of achievement of learning outcomes. Looking for the average as follows:

$$\bar{x} = (\sum x) / n$$

Explain :  $\bar{x}$  = Average score

$\sum x$  = Total of score

$n$  = Total of Students

Percentage of learning achievement outcomes classically, as follow:

$$P = f / n \times 100\%$$

Explain :  $P$  = Percentage of successful

$f$  = Frequency

$n$  = Total of students

To measure students' learning achievement in descriptive scale, so it will be divided in five scale that adopt from Safari (2003) as follow:

**Tabel.1 category of Five scale successful**

| Score Interval | Category       |
|----------------|----------------|
| 85 – 100       | Extremely High |
| 70 – 84        | High           |
| 55 – 69        | Intermediate   |
| 40 – 54        | Low            |
| 0 -39          | Very Low       |

## The Result of the Research

Based on the result of evaluation which has been conducted, the students answering is examinationed in each cycle and compared with students score of the previous test. The result of 1<sup>st</sup> cycle, there are 10 students who get middle and low score. It is affect on the acquisition of classical students. After the reflection on the 1<sup>st</sup> cycle, and make improvement in 2<sup>nd</sup> cycle, the result is 93,10% of students has a minimum score. The following table of students result in 1<sup>st</sup> and 2<sup>nd</sup> cycle:

**Tabel.2 the result of 1<sup>st</sup> and 2<sup>nd</sup> cycle**

| Score    | Category       | Frequency |          | Percentage (%) |          |
|----------|----------------|-----------|----------|----------------|----------|
|          |                | Cycle I   | Cycle II | Cycle I        | Cycle II |
| 85 – 100 | Extremely High | 5         | 23       | 17,24 %        | 79,31%   |
| 65 – 84  | High           | 14        | 4        | 48,27 %        | 13,79%   |
| 55 – 64  | Intermediate   | 7         | 0        | 24,13%         | 0%       |
| 35 – 54  | Low            | 3         | 2        | 10,34%         | 6,89 %   |
| 0 – 34   | Very Low       | 0         | 0        | 0%             | 0%       |

## Discussion

Based on the result of the research that students' learning achievement of fifth grade students at MI Al Istiqomah get improvement in every cycle. Even in 1<sup>st</sup> cycle, students' learning achievement does not show maximum score but there is an improvement in 2<sup>nd</sup> cycle with precentage more than 75% of students get a minimum score (KKM).

Preliminary data that obtained by the researcher based on the evaluation result of respiration and disgestion material of fifth grade students at MI Al Istiqomah that is from 29 students, 24 or 82,75 students do not reach minimum Score

and only 5 or 17,24 students get minimum score. It shows students' Science Learning Achievement has low score. However, using Whole Brain Teaching method in learning process on 1<sup>st</sup> and 2<sup>nd</sup> cycle give an improvement on Student's Science Learning Achievement.

On 1<sup>st</sup> cycle, 10 or 34,48% out of 29 students do not get minimum score, while 19 or 65,51% students have minimum score. However, it cannot be said that learning process is successful because students' score do not reach minimum score based on researcher expectation that is 75% students must get minimum score. Those are because of these factors:

- Teachers have given attention to the time allocation that has been arranged on Lesson Plan
- Teachers have focused on all students when they demonstrated all movement
- Teachers and students have repetition all the movement in the last session.

The weakness of 1<sup>st</sup> cycle can be used as a reflection to make a better in 2<sup>nd</sup> cycle so that the researcher can make a new lesson plan. Moreover, after making a better lesson plan, 29 students was found that 2 or 6,89% of students has not got a minimum score and 27 or 93,10% of students has got a minimum score. In this cycle, using Whole Brain Teaching method, the researcher is successful to improve students' science learning achievement of fifth grade at MI Al Istiqomah in Nibung Subdistrict, Musi Rawas Utara Regency.

Selection of appropriate learning methods is necessary because this can facilitate learning and improve learning process well. Whole Brain Teaching method is one of alternative methods which can be applied on Science. There are some points should be considered in the application of this method in the learning process, as follow:

1. Easy-to-understand concepts can be taught directly by the teacher
2. The concept of learning is quite difficult can be taught by instructing students to read and understand first and then just teach their friends
3. Evaluation should be done to check students' understanding because learning with this method is classified as fast learning and enabling misconception
4. The concept is taught in stages where each stage is explained by the teacher and understood by the students, so that the students get a complete understanding
5. Material that is too difficult for students should be rethought how to teach them to students by using this method.

Based on Edgar Dale Pyramid, Whole Brain Teaching Method contributes 70-90% of what is said and done by students when students were doing dramatic talks and simulation to others so this method is effectively to use in this learning process.

The learning process of Whole Brain Teaching Method required students to have a quick understanding what have delivered by teachers and also give a clear explanation about basic concept of the learning which need to be understood by students. The strengthness of this method is students attention to teachers. When students pay attention to the teachers, the information that delivered by teachers can be conveyed well. The role of each steps in the learning process using Whole Brain Teaching Method as follow:

1. *Class Yess*
2. Activate prefrontal cortex, the center of Logical Reasoning. This area is a main center which should re-opened with Class yes so the brain is ready to get any information.
3. *Classroom Rules*
4. Five class rules when used in the class involves frontal cortex, broca area, wernickel area, limbic system, hippocampus, visual and motor cortex.
5. *Teach Okey*
6. *Teach Okey* is the most strength in the learning process. Teach Okey activity involves prefrontal cortex, activate broca area while speaking, wernickel area while listening, activate cortex visual and motoric according to demonstration and making a movement. All activities stimulates brain hippocampus to have long term memory.
7. *Scoreboard*
8. Scoreboard is one of an important things in this learning method. It is a key to limbic system of emotional area that concern to happiness and sadness when students get punishment or learning.
9. *Hand and Eye*
10. It is a keywords to focus on all activities of seeing and hearing to get information from teachers. The mirror activates visual cortex and motoric.
11. *Switch*
12. It helps students to improve their skills of speaking and listening.

The sixth steps on Whole Brain Teaching method give a learning experience about mentality, motoric and cognitive because there are activities that activate their mentality, motoric and cognitive.

## Conclusion

Based on the result of the research and discussion that have explained could be concluded that implementation of Whole Brain Teaching method in Science can improve students' learning achievement of fifth grade students at MI Al Istiqomah, Nibung Subdistrict, Musi Rawas Utara regency. It is showed from the improvement of students' learning achievement. The last result, the total of students who get  $\geq 70$  have an improvement and having a presentase about  $\geq 75\%$ .

The increasing of students who get minimum score presentase in this 1<sup>st</sup> cycle is about 65,51% and in the 2<sup>nd</sup> cycle is about 93,10%. The increasing of learning achievement average in the 1<sup>st</sup> cycle is 71, and in the 2<sup>nd</sup> cycle is 91,72. Thus, students who get score  $\geq 70$  is successful and get successful criteria of  $\geq 75\%$  so this research is not continued to 2<sup>nd</sup> cycle.

Based on the conclusion, there are some advantages, as follow:

1. Science learning applies using fun method so it can help to improve students learning motivation.
2. Learning uses Whole Brain Teaching can be an alternative method for science learning and others.
3. In learning activity, teachers must involve three of students modality aspect such as visual, auditorial and kinesthetics.
4. In applying Whole Brain Teaching Method in learning is needed an evaluation periodically to avoid misconception.
5. Teachers should focus on students so they will be active students in the learning process..

Pada tahun 2015 memulai aktivitas baru sebagai Aktivis Sekolah Guru Indonesia Dompot Dhuafa yang fokus pada peningkatan mutu guru dan kualitas sekolah. Pemakalah pada seminar pendidikan IPA di Universitas Malang tersebut, saat ini bergabung sebagai Konsultan Pendidikan Makmal Pendidikan Dompot Dhuafa.

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## Author Biography

Penulis bernama lengkap Andri Yulian Christyanto. Kecintaannya untuk mempelajari lingkungan dan makhluk hidup mengantarkannya menjadi Guru Biologi sejak berada di bangku kuliah di Pendidikan Biologi Universitas Muhammadiyah Surakarta.

