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THE EFFECT OF BRAIN GYMNASTICS ON THE ABILITY TO REMEMBER THE LESSONS OF SOCIAL SCIENCE

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ABSTRACT

Brain gymnastic is a series of simple exercises that consist of integrated contralateral movements that require balance, which mechanically activate both hemispheres of the brain through sensory and stimulating the motor cortex balance system. The research objective was to determine the effects of brain gym on the ability to remember the lessons of social science to the students of SDN Sukorejo II Lamongan. This study used experimental design. The population was 5th grade student and 30 samples were recruited by using simple random sampling. The independent variable in this study was brain gymnastic movement and the independent variable was a memory of improvement course material social sciences. Data were analysed by using the Wilcoxon test and mannwhitney test. The results showed that on pre-test of control group, there were (6.7%) students had low value, 6 students (40%) in value, 8 students (55.3%) had high value. While, post-test showed 3 students (20%) had low grades, 12 students (80%) value. Otherwise, the results of pre-test of treatment group showed that 7 students (47%) had low value, 7 students (46%) values, and 1 student (7%) had high value; and post test showed 1 student (6.7%) got the low value, 9 students (60%) had the value of the center, and 5 students (33%) had high value. Wilcoxon test results by comparing the pre and post test experiment of social science courses group and the control group showed $p = 0.001$ for the control group, and $p = 0.008$ for treatment group. Mann-Whitney test results obtained $p = 0.009$. It meant that there was a difference in social science courses between treatment and control groups after the intervention of brain gymnastics. Brain exercises can improve student scores. Therefore, brain exercises are recommended to be applied for students.

Keywords: Braingym, Memory, Social Science

Introduction

Memory is the ability to store, maintain, and recall information and experiences (Paramitasari, 2011: 29). The rich and powerful memory is very meritorious in the learning process (Sobur, 2003: 261). Memory is a vital role in everyday human life and the process of learning (Paramitasari, 2011: 36). Almost all

human activities involve aspects of memory; therefore memory becomes something very important in human cognitive processes. Memory is a core element of cognitive development, for all forms of learning of an individual involving memory, the memory of individuals is possible to store the information that is received all the time (Desmita, 2005: 20).

The ability to remember is important as a basis for storing information in the learning process. Most of the lessons in school basically require an ability to remember. Although the human brain has an unlimited ability, the ability to absorb information is still limited (Hartiningsih, 2011: 1).

Research conducted in 1974 by Prof. Mark Rosenweig, a psychologist revealed that even though humans were given 10 of new information in every second lifetime, half the storage capacity of the human brain is not fully charged (Hartiningsih, 2011: 1). According to Suharnan (2005: 67), memory is important because it is a place to store and maintain information about all the time (maintaining information overtime). Learning without memory, without considering what is learned is meaningless, when we intend to get something to learn, this is not possible without the help of memory.

Providing motivation to call parents/ guardians of students at the time of distribution of report cards and giving extra lessons are the teacher's effort in Sukorejo II Lamonganto improve learning and memory motivation of the students. There are also students who take private lessons outside of school. Results of a brief interview with IPS and homeroom teacher indicated that the learning process in the class made some children having a hard time to capture the information, understand the lesson and recall what they have learned at school.

Based on the data from the final exam semester of 5th grade students in 2011 in elementary school of Sukorejo II Lamongan, it was found that 14 (52%) of 5A grade students from 27 students got IPS

score below average grade, and as many as 14 (53%) of 5B students from 26 students got the score below the class average. Results of testing students' memory with said series resulted as many as 10 students (19%) of the 53 students were in the lower category, which were only able to write back as much as 1-10 of the series said tested; 20 (38%) of 53 students had medium category, which were able to rewrite the word as much as 11-20; and 23 (43%) of 53 students had high category in which they were able to write back as much as 21-30 words.

Jean Piaget stated that learning requires preparation in the child, it means learning is a process that requires both physical and mental activity. In addition, the children's learning activities should be tailored to the stage of cognitive development. Elementary school students, according to Piaget, cognitive development is at the concrete operational, which the child is able to think logically but still requires concrete objects to help his thinking (Santrock, 2007: 255). Passive learning will hinder the creativity of the mindset of students in understanding a concept. A concept will be easily understood and remembered by the student if the concept is presented through the procedure and appropriate measures, clear and interesting (Sprenger, 2011: 3). Weak students' cognitive abilities can cause low student achievement, because in the process of learning, the most important thing is the cognitive process. The most simple cognitive processes, such as how to perceive various kinds of information and presented in mind for later stored in the memory as knowledge, which at the time used to complete the task,

and how the process of forming new concepts (Minninger, 2011: 75).

Roger Sperry³ British scientists claim that the brain consists of two hemispheres, the left and right hemisphere, in both hemispheres of the brain, there are similarities in memory storage, but the right brain leads to short-term memory, and left brain function in short-term memory (Hartiningsih 2010:2). One of the ways to activate and balance the two hemispheres of the brain is through exercise. Brain gymnastics becomes a learning tool that is very effective and can have a positive influence on improving memory, increasing in math skills, attention, alertness and the ability of the brain to perform functions of planning, response and make a decision (Adriani, 2010: 20).

Brain gymnastics can open parts of the brain that were previously closed, and it is indicated that learning takes place by using all parts of the brain. Brain gymnastics if taken, is expected to give results as the ability to speak and increase the memory, decrease emotional stress and mind more clearly, the relationship between humans and the atmosphere of learning/work more relaxed, become more passionate, more creative, and more efficient. Brain gymnastics can be performed by all ages, ranging from infants to the elderly (Muhammad, 2010: 89). According to Dennison (2009), brain gym activities will stimulate brain function that consists of three dimensions that are often associated with a unit, such as the lateral dimensions, focusing dimension, and centre dimension.

Teachers need to help enable students to maximize student performance of the brain, and the current curriculum has led to the thinking of students who are

optimizing brain function. Optimized brainpower is performed by using brain exercises that can improve and balance the functions of the right brain and the left brain (Adriani, 2010: 20). The importance of the ability to remember is needed as a basic mastery of the material in the process of teaching and learning activities, and based on the background above, the researchers were interested in doing research titled "The Effect of Gymnastics Brain Against Memory Enhancement Material IPS At Students In SDN Sukorejo II Lamongan". The purpose of this study was to analyse the effect of brain exercises to increase memory material IPS At Students In SDN Sukorejo II Lamongan.

Methods

This was experimental study with posttest only control group design. The population in this study was students in the class 5A and 5B in SDN Sukorejo II Lamongan. Thirty students were recruited by simple random sampling. The independent variable was the brain gymnastics movement, and the independent variable was the increased memory of material IPS. Data were analysed by using the Wilcoxon test for pre-test and post-test, and Mann-Whitney test for post-test analysis of the two groups.

In this study, the instrument used was a quiz about social studies and a series of word tests, consisted of 20 different words, a video recording of brain gymnastics with elephant movements, the brain switches, cross-motion and rotation of the neck. The brain gymnastics was performed for a total of 6 meetings per week for 2 weeks. It was conducted two sessions per day, which was the first session

held at 7:00 - 8:00 o'clock and the second session was held during 12:00 - 12:30 o'clock

Results and Discussion

Results

The subjects were 30 students in 5th grade SDN Sukorejo II Lamongan

Social science Mark	Pre Test		Post Test		p value
	F	%	F	%	
Low	1	6,7%	3	20%	Wilcoxon test 0,001
Medium	5	33,3%	12	80%	
High	9	60%	0	0%	
Total	15	100 %	15	100%	

Based on the pretest results on May 12, 2012 showed that there was 1 student (6.7%) with a low value category, 5 students (33.3%) with a medium value category, and 9 students (60%) who are in the category of high value.

Otherwise, based on post-test results on May 26, 2012, it showed that there were 3 students (20%) with a low value category, 12 students (80%) with the category of moderate value, and no student (0%)

1. The results of the Pre-test and Post test material IPS in the control group on students at SDN Sukorejo II Lamongan on 12-26 May 2012

were in the category of high value. Based on statistical test of Wilcoxon, it showed that p value was 0.001, which is smaller than the value of α of 0.05. It meant there was a difference between the pre-test to post-test control group.

2. The results grades Pre-test and post-test materials IPS in the treatment group on students at SDN Sukorejo II Lamongan on 12-26 May 2012

Social science Mark	Pre Test		Post Test		p value
	F	%	F	%	
Low	7	47%	1	6,7%	Wilcoxon Test 0,008
Medium	7	46%	9	60%	
High	1	7%	5	33,3%	
Total	15	100%	15	100 %	

Based on the pretest results on May 12, 2012, it showed the classification value obtained 5th grade students, from 15 students, there were 7 students (47%) with a low value category, 7 students (46%) with a

medium value category, and there was 1 student (7 %) who was in the category of high value.

While, post-test results on May 26, 2012 showed the classification value of 5th grade students, which

was from 15 students, there was 1 student (6.7%) with a low value category, 9 students (60%) with a medium value category, and 5 students (33%) who were in the category of high value. Statistical test of Wilcoxon showed p value equal to 0.008, smaller than α value of 0.05, meaning there was a difference between the pre-test to post-test on treatment group.

3. Effect of brain gymnastics on the ability of memory material IPS 5th grade students at SDN Sukorejo II Lamongan

Post test results of Material IPS value in the control group and the treatment of brain gymnastics on the students at SDN Sukorejo II Lamongan on 12-26 May 2012

Social science Mark	Control Group		Treatment Group		p value
	F	%	F	%	
Low	3	20%	1	6,7%	Mann Whitney Test 0,009
Medium	12	80%	9	60%	
High	0	0%	5	33,3%	
Total	15	100%	15	100%	

Results indicated a change in the control group on category value distribution. The distribution of the value of posttest results of the control group showed the majority of students were 12 students (80%) in the range that was different from the majority of the pre-test value as many as 9 students (60%) were in the range of high value. While, in the treatment group, the results of posttest showed 9 students (60%) were in the group of medium value, while seven students (47%) in the value of pre-test were in the group of low value. There was an increase in the high value category that was from 1 student (7%) to 5 students (33, 3%). On the other hand, the Mann-Whitney test showed p value of 0.009, less than 0.05 means α H0 rejected. It was indicated that there was the effect of exercise on the brain memory of IPS material.

Discussion

1. The ability to remember material IPS of control group

5th graders of SDN Sukorejo II Lamongan

Based on the results of the initial data collection (pre-test) conducted in class 5B as the control group, from 15 students, there were 9 students (60%) with a high value category, 5 students (33.3%) with a medium value category, and 1 students (6.7%) who were in the category of low value. While, the value of posttest showed 3 students (20%) had low grades, and 12 students had medium grades.

The data showed the difference in the distribution of values between pre-test and post-test in the control group, brain gymnastics cannot be given due to active students in participating subjects, and the pattern of student's learning is at home.

Judging is based on demographic data in the control group, a total of 8 students (53%) who did not repeat the lessons when they were home. Cross-tabulation of data of the pre-test showed that 8 students did not repeat the lesson at home, 1

students (12.5%) got a good value, 1 student (12.5%) got moderate score, and 6 students (75%) got high grades. While cross-tabulation of posttest data showed that 8 students did not repeat the lesson at home, 2 students (25%) had low grades and 6 students (75%). Pre-post data showed a decline in the value distribution to students who did not repeat the lesson; a repetition of the lessons will further enhance the brain's ability to store a memory. This can impact on the ability of memory in an information store. Rehearsal is one important aspect in the success of a memory for long time (made the transition from STM toward LTM), as listed in the book (Son, 2010: 44) that to move short-term to long-term memory and preserve a memory by repeating the items that will be remembered (rehearsal).

Based on the income of parents, in the control group, there were five students (34%) with parental income Rp1,000,000. It will have an impact on nutrition in children with a relatively moderate income can affect nutrient preparations. Cross-tabulation of the data obtained pre-test students with parental income <1,000,000 showed 1 student (20%) getting a low score, 1 student (20%) getting the value of being, 3 students (60%) getting high marks. Students with parental income of Rp 1,000,000 - Rp 2,000,000 showed 1 student (33.3%) getting the value of being, 2 students (66.7%) getting high marks. Students with parental income of Rp 2,000,000 - Rp 3,000,000, showed 1 student (50%) getting moderate score, and 1 student (50%) getting high marks. And students with parental income > 3,000,000 showed 2 students (40%) getting moderate score, and 3 students (60%) getting high marks.

Cross-tabulation of the data obtained post test of students with parents who earn <1,000,000 2 students (40%) earn low grades, 3 students (60%) get the value of being. Students with parental income of Rp 1,000,000 - Rp 2,000,000, showed 3 students (100%) getting the value of being. Students with parental income of Rp 2,000,000 - Rp 3,000,000 showed 2 students (100%) getting the value of being; and students with parental income > 3,000,000 earned as much as 1 student (20%) get a low value, and 4 students (80%) get the value of being.

The cross-tabulation results indicated that there was no significant difference between high-income and low value of the IPS material obtained by the students, it is different from the notion that nutrition is a factor that also affects brain development. When nutrition is less, development of cell in the brain will also be reduced, and then impact on the communication between brain cells that will inhibit the information received. As noted in (Son, 2010: 209) stated that there is a quality development and performance of the brain and mind will be partly influenced by the composition of nutrients consumed by the individual concerned, the brain requires 20% of the total supply of food to the body. The energy supplied to the brain are mostly carbohydrates and proteins, but because the brain does not have a backup so that in case of disruption of food supply to the brain, it would lead to the withdrawal of food reserves of the other organs in the body. So, the energy will be reduced, causing a decrease in emotional stability, amnesia, and reduced ability to think and reason (Son, 2010: 210).

On demographic data, it was 15 children (100%) in both the control

group and the treatment group had a learning time between 1-2 hours. Data of pre test showed 1 student (6.7%) had low grades, 5 students (33.3%) had good values, and 9 students (40%) got a high score. While data of posttest indicated that three students (20%) had low grades and 12 students (80%) got the value of being. The data showed that there was no significant difference in the achievement of learning achievement material IPS of students.

Results of the cross table showed that the factors that affect learning such as nutrition, time, and repetition of lessons at home do not have a relationship to improve memory, especially the memory of the material IPS.

This is in contrast with the theory Soemanto (2003), which stated that in studying many factors that affect learning, namely: 1) Stimuli Factors of learning: stimuli learn is everything outside individuals that stimulates the individual to conduct the reaction or manufacture of learning, for example the length of lessons, difficulties of learning materials, teaching materials, the severity of the task, the atmosphere of the external environment. 2) Method of learning: teaching methods used by teachers affect learning method used by the students, the methods used by teachers pose a significant difference to the learning process, for example, about the activities of practicing or practice, memorize or remember, the introduction of the results of learning, guidance in learning. 3) Individual factors: individual factors are a very large influence to learn, for example, on the maturity of the individual, age, gender, previous experience, motivation, health condition.

The absence of correlation between factors that affect learning by improving the efficiency of arithmetic operations may be because the number of respondents know when it is observed that changing the behaviour during the research process. It is also supported by theory Djiwandono (2002), which stated that if the respondent was observed knowing that he was observed, Hawthorne Effect can occur, which is a tendency on the individual to adjust his behaviour to look for the better, so as to be different from the natural conditions.

2. The Ability Given the IPS material in the treatment group 5th grades of SDN Sukorejo II Lamongan

Based on data from pre-test, there were 7 students (47%) with a low value category, 7 students (46%) with a medium value category, and one student (7%) with a high category. Data of post test showed one category of students with low (6.7%), 9 students (60%) with the medium category, and 5 students (33.3%) with a high value category.

The data showed the difference in the distribution of the value of IPS on students, who generally showed an increase in the value of IPS memory. It was indicated that there was an influence of brain exercise on students' memory in enhancing IPS material. However, it depended on the students who performed the brain exercise correctly. Brain gymnastics was performed in every 30-60 minutes for 2 weeks. It is proven to improve memory of students in this regard IPS memory material, such as listening to the book of Dennison. The movement of moderate exercise can be performed in the brain

gymnastics, such as through the hands and feet to provide the stimulus or stimuli to the brain, which is to enable the ability of right and left brain. So, the cooperation between the right and left hemisphere³ of the brain can be established. Stimulus that can improve cognitive abilities, such as alertness, concentration, and speed in the process of learning, and memory, problem solving, or creativity (Dennison, 2009).

Results of the cross table of pre-test showed that 8 students (53%) were repeat lessons at home, and found that 1 students (12.5%) got high marks, 3 students (37.5) got moderate score, and 4 students (50%) got low score. While, posttest data showed 3 students (37.5%) got high marks, 4 students (50%) had moderate score, and 1 student (12.5%) had low grades.

Results of cross tabulation of data of the majority income of the parents of 8 students (53%) having parents with an income between Rp 1,000,000-2,000,000, obtained pre-test value as many as 3 students (37.5%) had low grades, 4 students (50%) had a medium value range, and 1 (12.5%) students had high scores. Post test data showed as many as 4 students (50%) had moderate score, and 4 students (50%) had high marks.

On the demographic data of 15 students (100%) studying in the range of 1-2 hours, the pre-test data showed that 7 students (46.7%) had low grades, 7 students (46.7%) had moderate value, and 1 student (6.6%) got high marks. While, post test data showed 1 student (6.7%) had low grades, 9 students (60%) had moderate score, and 5 students (33.3%) got high marks.

So, in this case, the treatment group had significantly different results even with relatively similar

conditions could be given a movement brain exercise as an alternative to increase their learning achievements, particularly the IPS material.

Stimulus motion on brain exercises can improve cognitive abilities, such as alertness, concentration, and speed in the process of learning, and memory, problem solving, or creativity (Dennison, 2009). Brain Gym can be used to help students to be more ready to accept the lesson, improve concentration range, improve focus and memory, and improve communication skills, emotional control, and others.

Gymnastics was made in order to stimulate the brain of 3-dimensional brain, including: 1) Dimensions of laterality or relieve. When these skills have been mastered, people will be able to process linear code, written symbols, the two hemispheres of the two majors: left to right or right to left, which is the basic capabilities of academic success (Muhammad, 2011). 2) Dimensions of focusing or relaxing, focusing is the ability to cross the "middle line participation" that separates the back and front of the body, and also the back (occipital) and the front of the brain (frontal lobe). Information received by the rear part of the brain (brainstem or brainstem) which records all thoughts, then the information is processed and passed to the front of the brain to be expressed according to the demands and desires. 3) The dimensions of convergence, convergence is the ability to cross the line of separation between the upper and lower body and hooking the function of the upper and lower parts of the brain: the central part of the limbic system

(midbrain) related to emotional information and a large brain (cerebrum) for abstract thinking (Muhammad, 2011).

3. The Effect of Gymnastics Brain Against Memory Capability Material IPS of 5th Grade At SDN Sukorejo II Lamongan

Based on the test of Wilcoxon Signed Ranks, the group treated brain gymnastics had a magnitude of ρ value equal to 0.008, where the value was smaller than the value $\rho \alpha$ value of 0.05. So, H_0 is rejected. It meant there was the effect of brain exercises to increase the power to remember the material IPS of 5th grade students, which can be seen in the distribution of an increase in the value of students who get high grades from one student (7%) to 5 students (33.3%). The data of students who had a low score from 7 students (47%) reduced to only 1 student (6.7%) in the post test.

On the other hand, the control group had ρ value equal to 0,001. There was a decreased value in the control group, from 8 students (55.3%) who got high marks to 0 student (0%), and an increased value of students who got low scores, from 1 student (6.7%) to 3 students (20%) during the post test.

Changes in the value of the control group and the treatment group were the result of brain gymnastics intervention. The treatment group was given brain exercises every 30-60 minutes for 2 weeks, starting from 12 May to 26 May 2012. All students have increased value. Otherwise, the control group was not given any intervention. Increased value in the treatment group was due to the provision of regular brain exercises held for 2 weeks, the movements in the brain exercise can increase the

memory to remember the students that as mentioned in the book of the originators Dennison that brain exercise at the motion stimulus of brain gymnastics can improve cognitive abilities, such as alertness, concentration, and speed in the process of learning, and memory, problem solving, or creativity (Dennison, 2009). The success in increasing the value of the IPS material is supported by several factors, such as in the implementation of brain exercises, the students follow all the activities, movement, enthusiastically and good command in accordance with the movement exemplified. The attention to the instruction of students supports the success of brain exercise. According to the theory in the book (Son, 2010) said that the information included in the short-term memory requires sufficient attention, meaning that the information we put in a state of mind aware (conscious mind). On the other hand, the presence of the students during the activity without any absences is one of the factors that play a role in the success of brain gymnastics. Dennison said that the implementation of brain exercises conducted regularly for several weeks will improve memory and concentration educates students (Dennison, 2009).

While the decline in value that occurred in the control group might be because of brain exercises were not given as a stimulus to increase cognitive ability to remember. In addition, the withholding of brain exercise, learning behaviour of the students in the class as a supportive factor, the lack of concentration of student while attending the lessons are the causes. An attention and concentration will allow a person to

store information in a memory. It is as stated in (Son, 2010) that the attention and repetition in several times will make information passed into long-term memory (long term memory) that will be stored for days, months and years.

Gymnastics brain is a way in improving the cognitive aspects of children, both in terms of memory both long term and short term, math, improved reading skills, writing skills, creative thinking, and many more benefits derived from brain gym activities.

Basically, brain exercises is an activity that focuses on three areas, namely cross the midline, stretching the muscles, as well as motion increasing energy and attitude of reinforcement. Each of these functions has a diverse movement. Gymnastics brain is totally different from physical exercise. If the exercise is oriented on physical strength and physical fitness, a person is expected to have the healthy physical brain exercises aimed at improving brain function and optimizing the back.

Every child basically has the same relative ability, depending on how the child will maximize his condition, ranging from the environment, stimulus, nutrition, genetic factors, even the role of parents becomes an important part in the cognitive development of children that includes also how the ability to remember the children themselves. Brain exercise is done correctly and in a continuous time will increase the ability to remember the child because it will stimulate both hemispheres (right-left) to work together, and in this case, namely the hippocampus part of the brain is responsible for increasing memory function.

In this study, respondents were given four kinds of brain exercises, including: elephant movement, the movement of the brain switches, cross movement, and rotation movements of the neck. Elephant movement activates the inner ear for balance and equilibrium, integrates the brain to hear with both ears, relaxes muscles tense nape, which often arise in response to sounds or exaggerated lip movements while reading silently. On elephant movement, torso, head, arms and hands work as a unit move in the shadows around 8 beds from a distance, with the focus on the eye passing through the hands. Whole body part moves, not just the arm. This movement has many benefits; including helping us to listen to our own voice that speaks is an important aspect in writing with success. It stimulates attention, perception, and discrimination, and helps integrate vision, hearing and movement of the entire body to fully activate the vestibular system (Dennison, 2008: 334).

Elephant movement activates the brain to cross the center line of hearing (including the ability to pay attention, recognition, perception, discrimination, and memory), listening to the sound of his own, long-term memory and short-term (Dennison, 2008: 12), the ability to speak in my heart and thought, the integration of vision, hearing, and movement of the entire body, and the depth perception and ability of eyes to work together (Dennison, 2008: 15-16).

Movement is a movement of the brain switch, which aims to improve the energy and the strengthening of attitude. This movement works in reactivate neural connections between the brain and the body member to

facilitate the flow of electromagnetic energy into the entire body. The supports of the movement of electrical and chemical change that take place during all the mental and physical events. Energy circles in three-dimensional body (left-right, up-down, front-rear, and vice versa) to build and support the ability to easily know the direction. It is also aware of the left and right side, concentration and focus and awareness of our existence in space and in relation to the objects around us (Dennison, 2008: 43).

Movement increases energy to strengthen critical information from tactile/ kinaesthetic touch and the internal relations of the body that usually develops during infancy. All input through sight, hearing or kinaesthetic, even all sensory information is converted into electrical signals and is connected to the brain via nerve fibers. The brain sends out electrical signals through other nerve fibers to guide the system vision, hearing, and muscle responds. Movement increases energy and promotes positive attitudes to enable neurocortex and thus refocusing the electrical energy to the centre of thinking that makes sense.

This activates parasympathetic function and reduce the release of adrenaline, and by increasing the voltage electrical nerve membrane, thoughts and actions are coordinated back. In addition, funnels vestibular labyrinth of the inner ear are stimulated by electrical activity that occurred during the movement, funnels it then activates formation reticularis in the brain stem that select relevant information in order to be appointed, and create supporting alertness and concentration of attention in the rational center of the

brain. The brain switch movement would then enable and focus on the higher level of brain centers, such as for fine motor skills and to learn new things (Dennison, 2008: 43).

Movement of the brain switch will activate the brain to send messages from the brain to the right side of the body and vice versa, increase the acceptance of oxygen, stimulate of the carotid artery to increase blood flow to the brain so that the brain does not get tired and the concentration range and the energy will be able to be maintained longer. So, it will add to the range of concentration while studying, and will also increase the flow of electromagnetic (Dennison, 2008: 47-48).

The conduct of this movement will be beneficial for students to increase the energy level of the students, so they will be staying longer in class and posing enough power to keep all the lessons each day. Cross movement is useful in activating the brain in integrating the left and right hemisphere. Centering is awareness of the major muscles that affect posture. While the academic skills improve reading skills (solving and using a password), listening skills, mathematics, computation and mechanics of spelling and writing (Dennison, 2008: 23).

This movement serves to coordinate the right and left brain hemispheres to work together at the same time. Simultaneously, hemispheric activity is an important aspect in mind-body integration. This movement will assist us in accessing large parts of the picture and spatial-right hemisphere of the brain that open to new experiences, and will facilitate learning by creating a linear process of what we do (region in the

left hemisphere), so it will be easier for students to understand a new lesson received calculation and mechanics of spelling and writing (Dennison, 2008: 327). If both hemispheres have coordinated well, there is no longer term dominance of the brain, all the tasks on the part of the brain can work in a balance, and 5th graders who are basically still in the developmental cognitive gold will be more leverage in their learning activities. Their memories will be honed and adapted to any learning model.

Round neck movement is beneficial to activate the brain for vision with two eyes simultaneously (binocular), ability to read and write in the middle of the field, convergence (centering), and relaxed central nervous system. Improve academic ability, in terms of reading with the sound, silent reading, ability to learn on their own, speech and language and ease breathing.

Round movement is more relaxed scruff of the neck and release the tension caused by the inability to cross the center line of visual or to work in the middle of the field. If the movement is performed before reading and writing, it will boost the capability of vision in both eyes (binocular) and a hearing with both ears (binaural) simultaneously.

Gymnastics brain basically is to open the closed part of the brain, relaxed stiff back of the body at the time of learning that only sculpting students are in their seats for \pm 5 hours, and will improve the coordination of all the senses in the body, the parts of the brain that can work maximum in processing new information and then store it in memory.

Based on the Mann-Whitney test were used to determine the difference in post test results in the control group and the treatment group, it showed ρ value equal to 0009, meaning that the difference between the results of post-control and post-treatment. Post-test in the treatment group had a better distribution than the control group. The control group consisted of as 3 students (7%) getting low grades, 11 students (73%) getting moderate score, and 1 students (20%) getting high value. While the treatment group consisted of 1 student (6.7%) getting low grades, 9 students (60%) getting moderate grades, and 5 students (33.3%) getting high mark. The difference in value indicated a positive effect in the treatment group, which was an increased memory on the material IPS. It indicated the existence of a successful administration of brain exercises to increase memory material IPS fifth grade students at SDN Sukorejo II Lamongan. Brain exercises can integrate movement both sides of the brain to work together in order to improve the cognitive abilities, which is supported by an originator of the theory of brain gymnastics Dennison Edu K for children. It is noted that the movement of moderate exercise performed in the exercise of the brain can provide a stimulus or stimuli to the brain, which is more activating the ability of right and left brain. So, the cooperation between the right and left hemispheres of the brain can be established, the stimulus movement on the brain exercises can improve cognitive abilities, such as alertness, concentration, and speed in the process of learning, and memory, problem solving, or creativity (Dennison, 2009)

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