



THE INFLUENCE OF BRAIN GYMNASTIC TO LEARNING ACHIEVEMENT ON STUDENTS IN MOJOKERTO REGENCY

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<i>ABSTRACT</i>	<i>Keywords</i>
<p>Achievement was result of activity that had been done, created both individually and in groups. Learning achievement was perfect if it fulfilled cognitive, affective and psychomotor aspects. Continuous brain exercise would familiarize children to maintain main brain cognitive functions, so they could help children to achieve achievements. This study aimed to determine brain gymnastic effect on elementary school student achievement in Mojokerto. This research was conducted with a quasi-experimental method with "Pretest-Posttest with Control Group Design" at Al-Akbar Mojokerto Islamic Primary School. Sampling used purposive sampling, 132 students. Brain gymnastics was performed 6 times a week for 4 weeks with 7-10 minutes in each exercise, while children's learning achievements were measured by test scores. The study instruments used observation data on brain training and reports on children's learning achievement. Data were analyzed with Wilcoxon Mann Whitney test with SPSS for Windows. The results showed that before training students' learning achievement was very satisfying with 1 respondent (3%) in treatment group and the very satisfying control group totaling 9 respondents (28%). Learning achievement after training for 4 weeks was mostly very satisfying 29 respondents (88%) in treatment group, while in control group considered satisfying totaling 16 respondents (49%). The data results with Man Whitney got a value of $p = 0.008$, meant that there was influence of brain gymnastics on learning achievement. By doing a simple gesture would activate brain cells and increased blood flow to brain so that concentration of learning could increase and could receive the knowledge provided by teacher.</p>	<p>Brain gymnastic, Elementary school student, Learning achievement</p>

PREFACE

Learning achievement is the result obtained in the form of impressions that result in changes in the individual and skills in knowing something as a result of learning activities. While in the learning process, one thing that becomes a reference point for students' success in learning is measured by student learning achievement which can be seen in the values of student learning outcomes. In the learning process, methods, strategies and the provision of facilities and infrastructure as supporting media in the learning carried out by the teacher should be something that is truly appropriate and meaningful, to obtain maximum results in improving student learning achievement in accordance with the stage of child development. The interaction between teacher and student as an active role in learning is working well teaching method. Student learning achievement is also determined by the effectiveness of the teaching and learning process. Teacher as a mediator and facilitator who must prepare himself in planning, implementing and evaluating learning. The level of success of students in mastering subject matter is

usually expressed by value.(Djamarah, 2011)

Student achievement is very diverse. There are those who get good achievements, enough, even some are very lacking. The high and low learning achievement is related to several factors. These various factors interact with each other so it can produce certain outputs in the form of learning achievement. Factors that influence the learning achievement include internal factors such as intelligence and external factors such as diligent in going to school, sincerity in attending lessons, length of study and support of parents. (Djaali, 2009). The problem of low interest in learning has long been a matter of teacher thought and attention. In general, students show a lack of enthusiasm and lack of enthusiasm and are not ready to take lessons so that the atmosphere is less active, the interaction between teachers and students or students with other students is lacking, students tend to be passive and only accept what the teacher gives.(Aswar, 2012).

The possibility of low student interest in learning is caused by many factors, including rote teaching method that will be done by students before the test or exam is held. Students have not

been able to learn thoroughly, where new concepts can be connected with existing or already owned concepts so students know the interrelationships between concepts, one of the efforts to realize this is by choosing a variety of learning models that enable a meaningful learning process to occur.(Sukri& Purwanti, 2016).

Based on observations made on December 17, 2017 at the Al-Akbar Islamic Primary School, students were still found to have low grades in their report book. Students did not achieve learning outcomes according to achievement indicators. This could be seen from the data on student learning outcomes at the end of the learning process. The teacher gave their students who have difficulty in receiving the knowledge that had been given. Based on Putranto's research, PujiLeksono (2009) entitled brain exercise on short memory functions in children with low socio-economic status in 37 control groups and 36 control groups obtained $p = 0.002$ that were in accordance with the results of research related to brain gymnastics with children's learning achievement . Ahmad Sukri and Nelly Purwanti's research entitled "Increasing student learning outcomes through Brain

Games" obtained significant results between brain game movements and student learning outcomes. Cynthia's research entitled "The Effect of Brain Gymnastics on Students' Writing Ability" obtained Results of the Dissection of Brain Gymnastic Anatomy on Student Writing Ability, while Research conducted by IhwanSidiqNugroho, TutiHardjajani, Hardjono Program Psychology Study of FK UNS who wanted Brain Gym to the development of the literacy ability in grade 1 elementary school students "the results obtained in the provision of brain training (2-tailed) level $0,000 < 0.05$ significant (α). The difference in literacy skills between male and female students showed the results of Sig. (2-tailed) $0.294 > 0.05$ significant level (α) which stated that there was no significant difference. In this study using respondents from 4th and 5th grade students of elementary school, different from previous studies conducted on 1st grade elementary school students and students. The reason for using a sample of grade 4 and 5 elementary school students was because students would face National examination in grade 6, it was expected that if brain exercises were carried out continuously

starting in grades 4 and 5 of elementary school, students would be more calm and ready to work on National Examination questions.(Lemos, Abreu, & Sougey, 2014).

There are many factors that make students unable to absorb teacher lessons, such as teaching methods that are boring, uninteresting, and not up-to-date. While the causes of weak absorption of students in school because they are not used to reading so that it is slow in analyzing (Rohmaniah, 2015). The teacher has a very important role in determining the quantity and quality of the teaching that is carried out. Therefore, the teacher has to think through and plan carefully in increasing the learning opportunities for his students and improving the quality of his teaching. This requires changes in organizing the class, the use of teaching models, teaching and learning strategies and the attitudes and characteristics of the teacher in managing the teaching and learning process, acting as facilitators who try to create effective learning conditions that enable teaching and learning, develop learning materials well and improve students' ability to listen to lessons that master the educational goals that must be achieved. To fulfill this,

teachers are required to be able to manage the teaching and learning process that provides stimulation to students so they want to learn because students are the main subject in learning.(Putranto, 2009).

Brain gymnastics is one alternative solution to help children in overcoming the lack of concentration, and stimulate the brain to receive information easily. It has simple movements and is not tiring and can be done anytime and anywhere. (Fajriati, Safei, & Saprin, 2017). By doing brain gymnastics before learning begins it is expected that children are happy, so learning is not boring which has an impact on increasing students' enthusiasm. Brain gymnastics is a series of body movements that are able to maintain mental health and cognitive function of the child. Body movement is very influential on brain activity. By routinely doing brain exercises, children can absorb information faster, improve learning abilities, sharpen body reflexes and coordination, sharpen memory and concentration, and balance the body and mind. At present, anyone can and is strongly encouraged to do brain exercises, ranging from children to the elderly. The brain is a vital organ that

everyone has to support their ability to think. Having a healthy brain is very useful to improve memory, concentration, focus, and so on. Therefore, a person's success is determined by the quality of his brain, both the right brain and the left brain.(Gallagher, McLeod, & McMillan, 2019).

Many people are successful, both in Indonesia and abroad using intuition (right brain) as well as the ratio (left brain) to think about overcoming the problem. So, indirectly explaining that one's success is strongly influenced by the balance between the right and left brain. In order for the right and left brain to develop in a balance way, it takes a right or left brain exercise or exercise that can be done easily at home. Based on the background described, the researcher conducted a study "The Influence of Brain Gymnastic to Learning Achievement On Students InMojokerto Regency"

MATERIAL AND METHODS

In this study, researchers used the research design of the Quasy experiment, which is a design that seeks to reveal a causal relationship by involving a control group other than the

experimental group (Nursalam, 2008). This research was conducted at the Al-Akbar Islamic Primary School in Mojokerto Regency. The population in this study were all students of Al-Akbar Mojokerto Islamic Primary School. The sample in this study were all students of Al-Akbar Mojokerto Islamic Elementary School class 4 and 5 as many as 132 children using purposive sampling. The study was conducted 6 times a week for 4 weeks in January 2017. The research variables included independent variables namely brain gymnastics and the dependent variable was learning achievement. The instruments in this study used observational data about brain training and reports on children's learning achievements. Brain gymnastics is performed on students before the lesson begins in front of each class for 20 minutes. Data collection is done by observing learning achievements by looking at the test scores before and after brain exercises. To analyze differences before and after brain gymnastics, Wilcoxon signed rank test was used, while for differences in learning achievement in the control and treatment groups were analyzed by Mann Whitney.(Nursalam, 2008).

RESULT

1. Description of Research Location

Islamic Elementary School of Al-Akbar located in District Bangsal precisely on Jl. Education No.1, Sumbertebu. Islamic Elementary School of Al-Akbar has a commitment in implementing Islamic teachings in daily activities. Besides supported by professional educators, this school also have adequate facilities such as representative classrooms for learning, libraries, computer labs, places outside the classroom (outdoor), musholla, canteen.

2. General Data

Respondent characteristic based on gender

Table 1 frequency distribution based on gender in Islamic Elementary School of Al-Akbar Mojokerto on January 9th-22th 2017.

No	Gender	Frequency(F)	Percentage (%)
1	Male	64	48,5
2	Female	68	51,5
Total		132	100

Based on the tabel 1, it is known that almost respondents are male as many as 68 students

(51,5%).

3. Specific Data

a. Learning achievement before doing brain gymnastic

Table 2 Frequency distribution of learning achievement before doing brain gymnastic in Islamic Elementary School of Al-Akbar Mojokerto on January 9th-22th 2017.

No	The creativity before doing brain gymnastic	Treatment		Control		Total	
		F	%	F	%	F	%
1	Very satisfy	2	3	1	28	20	15
2	Satisfy	6	97	8	15	74	56
3	ing	4	0	1	9	6	5
4	Satisfy	0	0	0	24	16	12
5	ing	0	0	6	24	16	12
	Enoug	0		1			
	h			6			
	Less			1			
	Failed			6			
Total		6	10	6	10	13	10
		6	0	6	0	2	0

Based on table1, it is known that learning achievement before doing brain gymnastic are mostly very satisfying in treatment group which is 2 respondents (3%). And mostly

very satisfying in control group as many as 18 respondents (28%).

b. Learning achievement after doing brain gymnastic

Table3 Frequency distribution of learning achievement after doing brain gymnastic in Islamic Elementary School of Al-AkbarMojokerto on January 9th-22th 2017.

N	The creativity after doing brain gymnastic	Treatment		Control		Total	
		F	%	F	%	F	%
1	Very	5	88	3	49	90	68
2	satisfy	8	12	2	21	22	17
3	ing	8	0	1	18	12	9
4	Satisfy	0	0	4	6	4	3
5	ing	0	0	1	6	4	3
	Enoug	0		2			
	h			4			
	Less			4			
	Failed						
	Total	6	10	6	10	13	10
		6	0	6	0	2	0

Based on table 3 known that learning achievement after doing brain gymnastic is mostly very satisfying as many as 58 respondents (88%) in treatment group. And almost half of respondents which is

32 students (49%) are very satisfying in control group.

Test result of mann Whitney obtained value of $p= 0.00$. This shows that there is influence of brain gymnastic on learning achievement of students in Al-Akbar Islamic Elementary School Mojokerto.

DISCUSSION

a. Learning achievement of Islamic Elementary School students of Al-Akbar Mojokerto before doing brain gymnastic (pretest) on control and treatment group.

Based on table 2 known that the learning achievement before doing brain gymnastic were mostly satisfying which is in 2 respondents (3%) in treatment group. And mostly very satisfying in control group as much as 18 respondents (28%).

Learning achievement is a change of behavior that is considered important and expected to reflect the changes that occur as a result of student learning, in dimensional of idea, sense, and passion to create (Leonard & Amanah, 2017). Factors Affecting Learning Achievement are: a) Environmental factors: The environment is part of the life of the students. In the environment students live and interact in the chain of

life called ecosystems. During the lives, students cannot avoid the natural environment and social culture environment. b) Instrumental factors such as curriculum which is a plan for learning which becomes a substantial element in education. Each teacher must learn and explain the curriculum into the program more detailed and in clear targets. So that can be known and measured certainty the success level of teaching and learning that has been implemented. Educational programs are organized based on the available school potential such as labor, finance and infrastructure. Educational programs are organized and implemented for the advancement of education. The success of education in schools depends on how education programs are designed. Teaching programs created by teachers will affect the course of the teaching and learning process. (Sukri & Purwanti, 2016).

This shows the learning achievement before the brain exercises of the majority of respondents are rated satisfying in the treatment group and at mostly very satisfying in the control group. But although there are students who get very satisfying score, there are also found some students who have enough learning achievement, less, and even failed. (Kim, Han, Lee, & Renshaw, 2012). By the existence of

differences in academic ability among students, it is not only caused by the intelligence but are also determined by the way teachers are teaching, the facilities provided, giving nutrition in the children, family condition, and supportive environments. (Fajriati et al., 2017).

b. Learning achievement of Islamic Elementary School students of Al-Akbar Mojokerto after doing brain gymnastic (posttest) on control and treatment group

Based on table 3 it is known that learning achievement of students after doing brain gymnastic are mostly rated very satisfying as many as 58 respondents (88%) in treatment group. And almost a half of respondents are also rated very satisfying as many as 32 respondents (49%) in the control group.

A brain gym is a series of exercise with the basis of simple body movements. The movement is made to stimulate the left and right brain (lateral dimension), relieve or relax the back of the brain and the front of the brain (focusing dimension), stimulate the emotional system, the central brain (limbic) and the big brain (dimension). Gymnastics in simple movements has already ease learning activities in adjusting to the tension and demands of

everyday life.(Sukmayasa & Lasmawan, 2013).

Many benefits are gained by doing a brain gym. Mild movements with games through the hands and feet can provide stimulus to the brain. That movement which produces stimulus can improve cognitive ability (alertness, concentration, speed, perception, learning, memory, problem solving and creativity), align the ability of activity and think at the same time, improve the balance or harmonization between emotional control and logic, optimize sensory performance function, maintain body flexibility and stability, improve memory and repetition of letters or numbers.(Djamarah, 2011).

The results of the highest learning achievement which is very satisfying, mostly achieved in the experimental group (group given the brain gymnastics). Movement of brain exercises in the form of cross movement can increase the concentration of children by activating the brain cells. By doing brain gymnastic before the learning process, children become fresh and relaxed so that they are able to follow the learning process well.(Denisson, 2000).

c. The influence of brain gymnastic on learning achievement of students in

Al-Akbar Islamic Elementary School Mojokerto

This research result that $p=0.00$. This shows that there is influence of brain gymnastic on learning achievement of students in Al-Akbar Islamic Elementary School Mojokerto.

According to Slameto (1999: 182) in Djamarah's book 2011, stated that interest is a preferences and more attachment to a thing or activity on the order. Interest can be grown to the learners by providing information to students about the relationship between teaching materials that will be learned with learning materials that have been learned and describing the benefits in the future. According to M. Dalyono (1997: 56) in Djamarah's book 2011, said that someone who has good intelligence (high IQ) is usually easy to learn and having good results. Conversely someone who has low intelligence tend to have difficulty in learning, slow thinking so that learning achievement is low.(Kim et al., 2012).

The research result both in the control group and experimental group showed improvement in learning achievement. This indicates a strong motivation in both groups, so that both are increasing. The strength or weakness of one's learning motivation also influence the success of learning.

However, in the group who performed brain exercises before the learning process had a higher increase in comparison with the control group. Simple gymnastic movements can stimulate the left and right brain, relax the back of the brain and the front of the brain, stimulate the emotional system, the central brain (limbis) and the cerebrum. Simple movements in brain gymnastic has already able to activate the brain cells and increase blood flow to the brain so children are easy to receive knowledge provided from the teacher and can concentrate in learning activities.(Denisson, 2000).

CONCLUSION

- a. Learning achievement of students in Al-Akbar Islamic Elementary School before doing brain gymnastic mostly have satisfying score in the treatment group and most of the control group respondents have very satisfying score.
- b. Learning achievement of students in Al-Akbar Islamic Elementary School after doing brain gymnastic mostly have very satisfying score in the treatment group, while in the control group almost a half of respondents have very satisfying score.
- c. There is influence of brain gymnastic on the improvement of learning achievement on students of Al-Akbar Islamic Elementary School Mojokerto. Light brain gymnastic movement can

stimulate left and right brain, relax back and front brain, stimulate emotional system which are middle brain (limbis) and also big brain. By doing brain gymnastic although in simple movement has already activate brain cells and increase blood flow to the brain so that children can receive knowledge easily that provided by their teachers and can concentrate in the learning process.

REFERENCES

- Aswar, s. (2012). *Tes Prestasi. Pustaka Pelajar, Edisi ke-2*. Yogyakarta: Rineka Cipta.
- Denisson, P. . (2000). *Brain Gym*. Jakarta: Grasindo.
- Djaali, H. (2009). *Psikologi Pendidikan, Ed. 1, Cet. 4*. Jakarta: Bumi Aksara.
- Djamarah, S. (2011). *Psikologi Belajar*. Jakarta: Rineka Cipta.
- Fajriati, I. S., Safei, S., & Saprin, S. (2017). Pengaruh Penerapan Metode Pembelajaran Brain Based Learning Berbantuan Brain Gym Terhadap Hasil Belajar Peserta Didik. *Jurnal Biotek*, 5(1), 1–10.
- Gallagher, M., McLeod, H. J., & McMillan, T. M. (2019). A systematic review of recommended modifications of CBT for people with cognitive impairments following brain injury. *Neuropsychological Rehabilitation*, 29(1), 1–21.
- Kim, S. M., Han, D. H., Lee, Y. S., & Renshaw, P. F. (2012). Combined cognitive behavioral therapy and bupropion for the treatment of problematic on-line game play in adolescents with major depressive disorder. *Computers in Human*

- Behavior*, 28(5), 1954–1959.
- Lemos, I. L., Abreu, C. N. de, & Sougey, E. B. (2014). Internet and video game addictions: a cognitive behavioral approach. *Archives of Clinical Psychiatry (São Paulo)*, 41(3), 82–88.
- Leonard, L., & Amanah, N. (2017). Pengaruh Adversity Quotient dan Kemampuan Berpikir Kritis Terhadap Prestasi Belajar Matematika.
- Nursalam. (2008). *Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan Pedoman Skripsi, Tesis, dan Instrumen Penelitian Keperawatan*. Jakarta: Salemba Medika.
- Putranto, P. L. (2009). Pengaruh senam otak terhadap fungsi memori jangka pendek anak dari keluarga status ekonomi rendah. Diponegoro University.
- Sukmayasa, I. M. H., & Lasmawan, I. W. (2013). Pengaruh Model Pembelajaran Kooperatif Tipe NHT Berbantuan Senam Otak terhadap Keaktifan dan Prestasi Belajar Matematika. *PENDASI: Jurnal Pendidikan Dasar Indonesia*, 3(1).
- Sukri, A., & Purwanti, E. (2016). Meningkatkan Hasil Belajar Siswa Melalui Brain Gym. *Jurnal Edukasi Matematika Dan Sains*, 1(1), 50–57.