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The Effect of Brain Gym on Learning Concentration for School Age Children

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Abstract**—***Decreased concentration can cause students' grades at school to decrease, also cause the quality of student learning to be low, and cause a lack of seriousness in learning as well as low comprehension skills for students, concentration and capital to receive learning material. In this way, students can increase their concentration with movement and thought activities that involve the right and left brain using the Brain Gym technique. Objective The aim of the research is to determine the effect of Brain Gym on the learning concentration of school-aged children. Methods: This type of research is quantitative research using numbers and experimental research methods, namely to determine the symptoms or effects of the experiment, Pre-Experimental Designs, namely One-Group Pretest-Posttest Design. This design consists of one group without a control group. The sample was 25 respondents from class V students at SDN Pasir gintung 01 taken using the total sampling technique. The instrument used in The Army Aplha Test consists of 12 question items. With analysis, the prerequisite tests are divided into "homogeneity, normality, hypothesis tests". Results: The results of the research obtained the results of the Parametric Independent T Test Hypothesis Test, namely 0.000. So the p value ≤ 0.05 (Ho is rejected, Ha is accepted) means "there is an influence of Brain Gym on the learning concentration of school-aged children. Conclusion: Brain Gym has an effect on children's concentration because Brain Gym movements relax the brain before receiving learning. Researchers hope that this research can provide information as well as suggestions for improving the concentration of class V students at SDN Pasir gintung 01 by starting with Brain Gym activities in learning at school and also making children concentrate before learning begins.*

Keywords**—** *Study Concentration; Brain Gym; School Age Children.*

I. INTRODUCTION

The school age children, the balance of the right and left brain needs to be balanced so that they can concentrate, but if their right brain and left brain are not balanced it causes a decrease in the child's concentration due to the learning agendaAt homeAndat schoolcauses fatigue in the child's brain.[1] For students, if concentration decreases, it can cause grades at school to decrease and also cause the quality of children's learning to be low, and lead to children not being serious about learning as well as low comprehension skills for students. Concentration is also the main capital for receiving learning material and making success in learning.[2]

Learning for students is also components that interact with each other andcooperateForreachlearning, learning is also readiness for students to study at home or at school, also related to physical and mental readiness, and mental readiness consists of intelligence, interest, talent, readiness, maturity and concentration. Concentration is very susceptible to decline in students, also students' concentration on information only lasts for the first 15-20 minutes of learning or providing information and will decrease after 15-20 minutes in the second minute.[2]

In the learning process you can alsocausestudents experience a decline in brain function at school. Caused by internal factors too external causes students to experience fatigue due to the teaching and learning process.[3] There are several factors that cause decreased concentration in children, including: externaland internal. According to the Judge factors external consisting of the environment, noise, less comfortable learning environment, and air temperature, where as internal factors such as drowsiness, and the body feeling hungry, stress, and physical pain.[3]

Students who can manage concentrating on studying will make you able to understand and apply all the information you will get. Then, by understanding the learning material presented by the teacher, children will get high grades in class. Then if students can'tguardYou will experience concentration when studying difficultyin carrying out comprehensive learning activities which will have an impact on learning outcomes that are less than optimal. Difficulty concentrating too experienced because students do not get proper attention from teachers, it is difficult to accept the material being taught and it is difficult to answer questions given by the teacher. If this condition continues, it will have an impact on value and results learning which is not optimal.[4]

Development in school-age children is connected by parents or adults. The age of school children aged 7-12 years is the latent period or also called the middle period, which is a period that experiences changes in form maturity physical and psychological. However, to achieve optimal development, children must try to be better, but there are times when the tasks of this development are not achieved. If the child's developmental tasks are not achieved, it will create an unpleasant assessment effect on the environment for the child and will also cause disturbance self-concept in children. The tasks of school age children are reading, writing and arithmetic (CALISTUNG), children are also required to be able to carry out these tasks to achieve developmental tasks so that they achieve success.[3]

From International Scale data from the IEA study (International*Associationfor the Evaluation of Educational*

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Achievement) gives results that the concentration and reading skills of students in class V of elementary schools in Indonesia are at a low average level, for scores test reading for elementary school students 74,55% (Hong Kong), 74,0% (Singapore), 61,1% (Thailand), 52,6% (Philippines), 51,7% (Indonesia). Children in Indonesia can master and master 30% of reading material and will find it difficult to answer questions in the form of descriptions that require reasoning.[5]

Based on UNICEF data, one-third of Indonesia's population is a total of 80 million children Indonesia with the fourth largest child data in the world. Indonesia with an area of 1.9 million kilometers and with 17,000 islands inhabited by >1,300 groups ethnicity.[6]

Based on data from DISDIK (Education Service) of West Java Province, the data obtained during BDR (Learning From Home) was around 39.6% male and 60.4% female with a total of 100,546 children. The data says that it is difficult to understand the material 70%, bored 57%, lack of concentration 56.60%.[7] Concentrationis a center of thought or information to pay more attention to that information. There are also those who say that concentration is the ability to focus on one's thoughts sorting information and focusinga concern or information that will be needed. [8]

The decline in student learning concentration in most children occurs at the age of 11-13 years, namely atstudent Class V elementary school, this is due to the child's level of preference for learning in certain subjects and the subjects that will be discussed in the national exam.[9]

That way, the way to increase student concentration is by usingactivitymovements and thoughts that will involve the student's right and left brain.[10]In this way, the techniques used also have the aim of increasing children's learning concentration for learning that can be felt by all students.[11]And improvement techniques that done inincrease One of the concentration methods is the Brain Gym technique.[12]

*Brain gym*is the essence of "Educational Kinesiology" or (Edu-K) which consists of the words "educare" which means pulling out and "kinesis" which means the science of body movement. Brain gym in short is simple movements that aim to bring the mind and body closer together in a fun way and Brain Gym is also an activity that can increase children's concentration due to the movements used to play a role in the three dimensions of the brain which are related to a person's skills.[8] The advantage of brain exercise or Brain Gym is that it increases children's creativity, children become enthusiastic about concentrating and children's achievements increase.[13]

The simple movements in Brain Gym consist of several movements that can make children not tense when starting a learning process, such as Hook-Ups, Lateral movements, figure eight sleeping, figure eight with elephant trunk, double strokes, alphabet eight, neck rotation and many more again for movements from the brain gym itself. In this way, brain gym has many benefits in making children focus more and pay attention to the learning provided at school and when there is independent learning at home, children feel uninterested in the learning they do themselves. Brain Gym is needed for children who have difficulty learning and for children who try hard to learn and become stressed, and causes decreased brain integration and certain parts that do not function, causing children to feel unable to receive information and express information, so that children feel less capable.[14]

To overcome this problem, a fun method is needed to increase concentration by using a method, namely Brain Gym, which was popularized by Paul E. Dennison, Ph.D together with his wife Gail Dennison with simple body movements that can relax the body and make the mind clearer to focus. in a learning situation and with that the researcher wants to know whether there is an influence of the Brain Gym movement on children's concentration.[15]

Based on this background, the author intends to conduct research on the influence of the brain gym on concentration in school-aged children.

II. Materials and Methods

The type of research used is quantitative with experimental research methods. The research design used in this research is Pre-Experimental Design with one group Pretest-Posttest. The population in this study were 25 students in class VA at SDN Pasirgintung 1, Nanggung District, Bogor Regency. The sampling technique uses total sampling, so the number of samples used is 25 respondents. The research was carried out on 29 November - 1 December 2023 at SDN Pasirginung 1, Nanggung District, Bogor Regency. The instruments used are the Brain Gym Standard Operating Procedures and the Army Alpha Test questionnaire which consists of 12 questions which will be read by researchers during the pretest and posttest. Researchers will carry out Brain Gym movements with respondents in 2 meetings which will be held in less than 10-15 minutes. The movements that will be carried out are: drink water, brain switch, cross movement, relax hook, owl, activate hands, leg wave, calf pump, gravity slide, and get into a stance. Then the measurements are carried out again with the Army Alpha Test by dictating or reading the questions and then putting the answers on the Army Alpha Test answer sheet. The research results are categorized into:

1.Concentration is very low if the score is 0-1
2.Low concentration if the score is 2-4
3. Medium concentration if the score is 5-7
4. High concentration if the score is 8-10
5.Concentration is very high if the score is 11-12.

To analyze the difference in pre-test and post-test learning concentration, it was tested using an independent sample test, with a significance level of $p < 0,05$ and a confidence level of 95%.

III. Observation and Results

TABLE 1. Concentration Frequency Distribution Before Brain Gym actions are carried out

S.No.	Concentration	Frequency	Percentage (%)
1	Very low	3	12
2	Low	13	52
3	Currently	9	36

Based on Table 1, it is known that of the 25 students who were respondents in this study, when the pretest was carried out,

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which was measured using the Army Alpha Test, most of the 52% of students experienced very low levels of concentration.

TABLE 2. Frequency Distribution of Concentration After Doing Brain Gym

S.No.	Concentration	Frequency	Percentage (%)
1	Very low	0	0
2	Low	5	20
3	Currently	13	52
4	Tall	7	28
5	Very high	0	0

Based on Table 2, it is known that of the 25 students who were sampled in this study during the Posttest using the Army Alpha Test and after carrying out the Brain Gym action, the majority of students, namely 13 students, had a moderate level of concentration (52%).

TABLE 3. Hypothesis test independent sample test

S.No.	Concentration	df	Q	Sig.(2-tailed)
1	Pretest	48	-4,309	0,000
2	Posttest	46,937	-4,309	0,000

Based on table 3, the sig value is obtained. (2 tailed) which is 0,000, so there is a difference before doing Brain Gym (pretest) and after doing Brain Gym (Posttest).

IV. DISCUSSION

1. Concentrate on Studying before Brain

Based on the research results in table 1, it is known that of the 25 respondents to the distribution of children's concentration when given the pre-test at SDN Pasirgintung 01, there were 13 children with low levels of concentration (52%).

Concentration is a center of thought or information to pay more attention to that information. There are also those who say that concentration is the ability to focus on one's thoughtssortinginformation andfocusinga concern or information that will be needed.[13]

The decline in student learning concentration in most children occurs at the age of 11-13 years, namely atstudentclass V elementary school, this is due to the child's level of preference for learning in certain subjects and the subjects that will be discussed in the national exam.[12]

Factors that can influence concentration are physical factors such as a less conducive learning environment, students' health conditions, feeling bored and students' lack of motivation to learn.

This is supported by Bilwalidyni's research with the title "The Effect of Brain Gym on Learning Concentration". This research shows in the pretest that in the intervention group, the majority of students had a low concentration level of 9 people (90%) and respondents who had moderate concentration were 1 person (10%).

The results of the gender of the 25 respondents revealed that 15 of the respondents were male (60%). That way the remaining boys are girls. So from one class at SDN Pasirgintung 01 there are 15 more boys and 10 girls. Research found that women's educational attainment was around 70% higher than men's and research in America also showed that women were less good in general verbal abilities than men. So why are there more males than females in this study because in this VA class most of the students are male than female, but even though there are more males, their concentration is the same, there are no better male students. or women because according to Denisson, concentration is a state of mind or association that is activated from within the body, so the sensations in the body need to be in a relaxed state and a pleasant atmosphere so that a person is not tense because a person will not use his brain optimally if his mind becomes empty.[16]

2. Concentrate on Studying After doing Brain Gym

Based on Table 2, it is known that of the 25 students who were sampled in this study during the Posttest using the Army Alpha Test and after carrying out the Brain Gym action, the majority of 13 students experienced a moderate level of concentration (52%).

Concentration is closely related to brain performance, because the brain works optimally to increase concentration, focus on learning, creativity, thinking and intelligence, and the whole body is also involved. This also requires a relationship that depends on thinking and the body which can be felt by sensations, movements, emotions and integration functions.[2]

The advantage of brain exercise or brain gym is that it increases children's creativity, children become more enthusiastic about concentrating and children's achievements increase.[13] The Brain Gym Movement will activate the nerves between the body and the brain, thereby facilitating the flow of electromagnetic energy throughout the body. In this way, in the brain stem there is a Reticullar Formation, which is a network that connects neurons and axons as well as complex dendrites. And if the reticular formation is active due to stimulation (in the form of movement) then the reticular formation will be active and there will be concentration because this reticular formation also sorts relevant information and is able to create alertness that supports concentration.[16]

This is supported by Audy Datu Fajrian Naufal with the title "The Effect of Brain Gym on Learning Concentration in Class V of Elementary School at SDN 2 Sempusari Jember". This research consisted of 44 children with an intervention group of 22 children and a control group of 22 children. The results of this study determine the measurement of concentration levels after Brain Gym, determining that the average concentration level has increased with results of 8.0 for the intervention and 5.0 for the control group who were not given the intervention. And the p value was 0.000 (<0,05). This means that there is a significant influence from Brain Gym on the learning concentration of class V elementary school at SDN 2 Sempusari Jember.

From the results of the theory above, it can be concluded that Brain Gym for students at Pasirgintung Elementary School, after it was carried out, increased concentration due to the results of research carried out by giving brain gym actions and then continuing with studying after giving Post-test questions, there was an increase in understanding in working on Post-test questions. In this way, from the posttest results, we can see that there are benefits from Brain Gym movements, namely increasing concentration in learning, reducing stress and cognitive anxiety and also reducing boredom in learning.

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In this study, on average, the majority of childrenclass V in Table 3 it is known that of the 25 students who were respondents in this study when the Pretest was carried out which was measured using the Army Alpha Test, most of the 52% of students experienced very low levels of concentration and alsoamong Class VA children aged 11 years there were 11 respondents (44%). With this, the majority of children in class VA are 11 year olds, the child's age will increase with increasing time, so at the age of 9-12 years the child's concentration power will be around 20-30 minutes.[26] According to Odom and Gusman, concentration can be maintained as children get older, older children will change their attention more and become flexible according to their needs, and vice versa, younger children are still difficult to direct and make explanations or facts whether or not accurate.

3. Differences in Study Concentration before and after Brain Gym Therapy.

Based on table 3, it is known that the results of the Parametric T Test Hypothesis Test are 0,000. So if the p value is ≤ 0,05 (Ho is rejected and Ha is accepted) it means that there is an influence of Brain Gym on the learning concentration of class V children at SDN Pasirgintung 01, Nanggung District, Bogor Regency.

Concentration is a state of mind or a conditioned association activated by bodily sensations. The method of activating sensations in the body is to put the body in a relaxed state and in a pleasant atmosphere, because in a tense state a person will not be able to use his brain optimally because the mind becomes empty.[17]

*Brain gym*These are simple and fun movements and using the hands and feet are also useful for relaxing the body, thereby increasing the brain's ability to learn as well as the child's focus or attention or concentration.

*Brain Gym*is a simple movement that is fun and can make the body calm and can make oxygen supply enter the body. Apart from that, Brain Gym is very necessary for children who have difficulty learning, try hard to study and create stress in the brain. Apart from that, it can cause stress and have an impact on the process of sorting the information received and make children feel inadequate in providing the necessary material, and cause children's enthusiasm for learning to decrease.[1]

The results of this research are in line with the research of a student from the Nursing Department at UIN Alauddin Makassar, namely Bilwalidayni Ikbal, with the title "The Effect of Brain Gym on Study Concentration of Nursing Students at UIN Alauddin Makassar" showing that the scores on the Pre-Test (before Brain Gym was carried out in the intervention group) of the majority of students had low level of concentration where respondents who had low concentration were 9 students (90%) and 1 student (10%) had very low concentration. Then, after carrying out the Brain Gym action or brain exercise in the intervention group, it was found that the majority of students had a high level of concentration, 9 respondents (90%) and 1 respondent who had a moderate level of concentration (10%). The results of the analysis were carried out using the independent sample T Test (t-test) with a sig (2 tailed) value of 0,000, so Ho was rejected and Ha was accepted.

According to the researchers, it can be concluded that the VA class children who experienced low levels of concentration at SDN Pasirgintung 01 showed an increase when carrying out brain gym activities followed by the Posttest. The results of the pre test (before the Brain Gym action was carried out were around 13 children who had a low level of concentration (52%) and when carrying out the Brain Gym action and followed by the Posttest.

Based on the research results in the pre-test and post-test, it was concluded that carrying out Brain Gym actions is a very appropriate method for increasing children's learning concentration because it can make children more relaxed when starting a lesson and make the material more understandable for children and make children focus in learning. learning. Because brain gym movements or brain exercises can trigger the endorphin hormone, this hormone is produced by the body when we exercise and also a feeling of happiness because this hormone is active when we feel happy, so the endorphin hormone provides a feeling of comfort and makes the body relax when someone does something. Physical activity and brain exercise movements, if done continuously, will relax the body and make the reticular formation activate endorphins and relax and help reduce tension and activate the three lateral dimensions, focus and centering so that the student's concentration will work optimally.[18]So it can be concluded that there is an influence in the method of giving Brain Gym actions to children.

V. LIMITATIONS OF STUDY

Some respondents had to be taught how to brain game repeatedly, so it took quite a long time to implement.

VI. CONCLUSION

There is an influence of Brain Gym on learning concentration in school-aged children. So the school can do brain games every day before carrying out learning activities so that students can concentrate more when starting teaching and learning at school.

Conflict of Interest: None

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