Research Article

THE EFFECT OF BRAIN GYM ON THE MEMORY OF STUDENTS AT SD ISLAM SURYA BUANA MALANG

Nisa Zeni Cahya Putri[1], Ratna Roesardhyati[2]

[1,2] Institute of Science and Health Technology, Dr. Soepraoen Hospital, Kesdam V, Brawijaya, Malang

ABSTRACT

Background: *Students' weak memory retention has been reported to negatively impact their academic performance. Interviews with homeroom teachers indicated that students frequently complain about forgetting previously taught material. Brain gym therapy, which consists of simple body-movement exercises, is believed to enhance cognitive function, including memory. This study aims to determine the effect of brain gym exercises on students' memory.*

Method: *This research employed a one-group pretest–posttest design without a control group. The independent variable was brain gym exercises, while the dependent variable was students' memory. The study population consisted of 42 fifth-grade students at SD Islam Surya Buana Malang, from which 30 respondents were selected using the simple random sampling technique. Data were collected through observations of questionnaire scores administered before and after the intervention.*

Results: *Findings showed that before receiving brain gym exercises, most students (66.7%) had an average memory score of less than 20. After the intervention, 73.3% of students achieved a very good score, with an average of 22. Statistical analysis using the Wilcoxon test revealed a significance value of $p = 0.000$ ($p < 0.05$). Therefore, H1 was accepted, indicating that brain gym exercises had a significant effect on the memory of fifth-grade students at SD Islam Surya Buana.*

Conclusion: *Brain gym exercises significantly improve memory in school-age children. It is recommended that teachers implement brain gym activities prior to learning sessions to support improvements in students' academic and non-academic performance.*

Keywords: *Brain Gym, Memory, Children*

Introduction

School age is an excellent time for brain development, including memory, to achieve good grades in school subjects. According to Law No. 4 of 1979 concerning child welfare (Suprajitno, 2004), school-age children are those aged 7 to 15 years. Children who achieve good grades in all subjects are often referred to as intelligent children. To be an intelligent child, in addition to a good IQ, it is also necessary to have good memory. The intellectual development and academic performance of children have become a concern due to their implications for future performance and individual quality of life and in social Academic performance is not only determined by affective functions but also depends on a child's intelligence functions. Intelligence is the application of cognitive and metacognitive aspects in the learning process and problem-solving, while cognitive processes depend on brain functions such as short- term memory and long-term memory, better known as a child's memory. A child's memory greatly affects their academic performance. Based on interviews with fifth-grade homeroom teachers at SD Islam Surya Buana Malang, it was revealed that fifth-grade students still have poor memory, with several students often complaining that they forget when the teacher asks questions after teaching the material. Research data from teachers highlighting concentration disorders, focus, and children's emotions and behavior in general by the Research and Development Agency of the Directorate of Special Education found that 696 elementary school students from four provinces

in Indonesia with an average report card score of less than 6 were found to have emotional and behavioral disorders and concentration disorders in 33% of cases. The results of Dwijo's 2020-2021 study found that out of 4,015 students aged 6-13 years in 10 elementary schools in Central Jakarta and West Jakarta, 26.2% had ADHD based on DSM IV criteria. Concrete data indicates that approximately 15% to 20% of children with ADHD will continue to have the condition into adulthood. About 65% will experience residual symptoms in adulthood, or sometimes they may gradually disappear. The incidence of children with ADHD in adulthood is around 2% to 7% (Judarwanto, 2009).

Based on data from SD Islam Surya Buana Malang when the author attended science lessons in grade V, out of 30 students, 15 students said they forgot, did not know, and could not answer the questions given by the teacher after the teacher delivered the material. Memory is the ability to receive, store, and reproduce impressions, responses, or understanding (Ahmadi & Supriyono, 2020). In school-age children, the development of the brain's memory is very good. If during this period the brain's development can be maximized properly, it can support the child's achievement.

Santrak explains that memory is an element of cognitive development, which contains all situations in which individuals store information that is received throughout time (Athison, 2019). Memory is one of the factors that greatly influences the learning process and improvement of children's academic achievement. With good memory, children's academic achievement will also be good, while poor memory will have an impact on children's achievement, causing them to have low self-confidence as a result of losing out to their school friends. To achieve all of this, optimal brain integration is required. By optimizing the use of all brain functions, they can be maximized, but not everyone is capable of doing so.

There are various ways to optimize brain function, including learning, playing, and nutrition that supports the brain. However, parents tend to choose to provide nutritious food alone rather than other methods. In fact, if you only rely on nutrition, the costs incurred will be high, and it can lead to overnutrition or obesity. Parents tend to underestimate brain development, assuming that good nutrition will make their children smart. However, this is not always true. Children's brain development can be further optimized through methods other than nutrition. One way to optimize the use of all dimensions of the brain is through brain exercises (Depdiknas, 2019).

Brain gym is a series of simple body movements. These movements are designed to stimulate the right and left brain (lateralization dimension); relieve or relax the back and front of the brain (focusing dimension); and stimulate the systems related to feelings or emotions, namely the midbrain (limbus) and cerebrum (concentration dimension). Brain Gym exercises can be performed with simple movements while doing daily activities and can be done without a specific time (Dennison, 2021).

Brain exercises help to integrate parts of the brain so that educators can use them to turn learning blocks into learning pathways. Brain exercises can be used to help students be more ready to receive lessons, improve concentration span, increase focus and memory, improve social interaction skills, and control emotions (Yayasan Daya Pelita Kasih, 2019). Brain gym is not a therapy that focuses on healing, but rather a method to draw out a person's potential and help them function better in their daily lives by improving children's communication and concentration skills (Stimulating Children's Brains with Brain Gym, 2019).

This is further reinforced by (Higbee, 2017:41), who states that the ability to remember actually depends on the method used, as well as how the exercises are performed using that method. According to Astuti (2018) in her study The Effect of Brain Gym on the Short-Term Memory of Elementary School Students at SD Negeri 34 Pontianak Kota, the average short-term memory score of students at SD Negeri 34 Pontianak Kota in 2014 before being given brain exercises was 8.96 ± 1.742, and the average short-term memory score after being given brain exercises was 10.70 ± 2.350. Brain exercises for two weeks, performed daily, can improve short-term memory scores. From this data, it can be concluded that brain exercises can help improve the memory of children. Based on this, the author is interested in conducting research on the effect of brain exercises on the memory of

elementary school children.

RESEARCH METHOD

Research design is very important in research as it allows for maximum control of several factors that can affect accuracy and results (Nursalam, 2021). The research design used was quantitative with *a pre- and post-test without control*. The population in this study was 42 elementary school students at SD Islam Surya Buana with a sample of 30 students. This research was conducted from August 3, 2025, to September 29, 2025, at SD Islam Malang. Data collection was carried out using daily tests where the researcher provided study guidelines for answering the pretest and gave brain exercises every week for 5 consecutive days (Monday-Friday). On the last day after the brain exercises, a post-test was conducted.

RESEARCH RESULTS

Table 1. Frequency Distribution of Respondent Characteristics

Respondent Characteristics	F	%
Gender		
Male	19	63.3
Female	11	36.7
Number of Siblings Biological		
Only child	4	13.3
1-2 Siblings	12	40
3-4 Siblings	14	46.7
Parents' occupation		
Private Employee	18	60
Factory Worker	3	10
Teacher	2	6.7
Military	3	10.0
Indonesian National Police	4	13.3
Total	30	100

Based on Table 1 above, the frequency distribution based on gender shows that the majority are male, with 19 respondents (63.3%), female, with 11 respondents (36.7%). Respondents with the highest number of siblings (3-4 siblings) numbered 14 respondents (46.7%), and the most common occupation of parents was private employee, with 18 respondents (60.0%).

Table 2. Frequency Distribution of Brain Gym and Students' Memory

Variable	F	%
Brain Gym (Pre-test)		
Very good	0	0
Good Fair	0	0
Poor	5	16.7
Very Poor	20	66.7
Brain Gym (Post-test)		
Very good	5	16.7
Good Fair	22	73.3
Poor	5	16.7
Very Poor	3	10.0
Memory		
Moderatey	27	90
improved	3	10
Total	30	100

Based on Table 2 above, it shows the frequency distribution based on the pre-test, namely students with poor memory, numbering 20 (66.7%), then after the post-test, students with very good memory numbered 22 (73.3%) and good memory numbered 5 (16.7%). Thus, the overall increase in the memory variable of students is 27 respondents (90.0%).

Table 3. Frequency Distribution of Brain Gym on Student Memory.

	Student Memory			
Brain Gym (post test)	N	Asymp. Sig (2-tailed)	Negative Rank	Positive Ranks
	30	<0.000	0	30

DISCUSSION

Based on Table 3, it can be seen that the Wilcoxon statistical test results show a P value of 0.000 a <0.05, which means that H1 is accepted and H0 is rejected, indicating that brain exercises have an effect on the memory of fifth-grade students at SD Islam Surya Buana Malang. There are various factors that influence the strength of memory, namely noise and the parents' profession. Most of the students' parents work as private employees, namely 18 respondents (60.0%).

This is supported by the opinion expressed by Hurlock (Wijanarko, 2017) that parental involvement influences children's learning

processes, both in terms of their attitudes and behavior in learning. Parents who work as private employees are known to have strict schedules imposed by their superiors at the companies where they work, especially if the company implements a shift system, particularly in private companies or institutions that operate 24 hours a day, such as hospitals and factories. This makes it difficult for children to receive maximum attention when they really need guidance on difficult classroom lessons, because their parents are either working or resting after a tiring day at work.

In this study, 14 respondents (46.7%) had more than two siblings. This is reinforced by Bhinnety (1993), who conducted a study to examine the effect of various levels of noise on the short-term memory of elementary school students in Yogyakarta. Noise can be caused by various factors, one of which is siblings. The more siblings in a family, the greater the optimal and has an impact on low memory and poor academic achievement. Memory after brain gym therapy found that the most data found in the post-test memory score was very good, namely 22 students (73.3%).

The theory regarding the benefits presented by Dennison (2016) states that doing brain exercises or brain gym can improve memory and enthusiasm for learning, thereby improving learning achievement. The movements in the brain gym series given to fifth-grade students are a series of movements that have the function of increasing memory. By doing these movements regularly, brain function can be improved and the body can be relaxed so that the information obtained can be understood optimally.

The results of this study are consistent with and supported by research from Arbina, Manah, and Arifin (2023) with results research P<0.000, indicating a significant effect of brain gym on improving students' memory at SD Muhammadiyah 1 Sidoarjo before and after the brain gym intervention. Before the brain gym intervention, the median short-term memory score was 4, while after the brain gym intervention, the median short-term memory score increased to 6. These results are also supported by the theory presented by Susanto (2016) that physical activity and light exercise can improve short-term memory. This theory is also supported by the theory presented by Rossman (2014) that the movements performed in brain exercises, especially in the focus and concentration part of brain exercises, are light movements performed to relax the body, such as the shoulders and ears, before beginning to receive information, which in this study was in the form of a grid provided before the students answered the questions. With the relaxation of the tense muscles, students are ready to receive information and lessons to be remembered and answered, so that in the post- test there is an increase in memory test scores compared to the previous pre-test scores where brain gym therapy was not performed.

Based on the above description, the researcher believes that improving children's memory can be done by performing brain gym, which is one of the cognitive occupational therapy options that can be used to improve memory, which in turn can improve the learning process. Before brain gym was conducted, children with a short-term memory classification of less than 66.7, and after being given brain gym, their memory increased by 90. Thus, the hypothesis proposed can be accepted, which means that the use of brain gym can improve memory skills in children at SD Islam Surya Buana Malang.

CONCLUSION AND RECOMMENDATIONS

The results of this study indicate that brain gym has an effect on the memory of children at SD Islam Surya Buana Malang. This is evidenced by a P value of 0.000 a<0.05, which means that H1 is accepted and H0 is rejected, indicating a significant improvement from the pre-test to the post-test. It is hoped that the results of this study will serve as additional reference on alternative methods that can improve memory so that students can learn about brain gym and apply it when conducting field practice because this therapy does not require costs and is easy to do.

REFERENCES

1. Abu Ahmadi & Supriyono. (2013).*General Psychology.* Jakarta: RinekaCipta
2. Afiatin, T. (2001).*Experiential Learning To Improving Memory.* Anima, Indonesian Psychological Journal. Vol. 17. No. 1.26-35.
3. Atkinson, Rites L et al. (2000). *Introduction to Psychology Eleventh Edition, Volume*

One. Batam: Interaksara
4. Bhinnety, M. E, Sugiyanto & Pudjono, M., (1994). *The Effect of Noise Intensity on Short-Term Memory,* JurnalPsikologi XXI. Vol 1. 28-38
5. Dennison, Paul E., Gail E. Dennison (2008). *Complete Guidebook to Brain Gym Brain Exercises,* Jakarta: Grasindo.
6. DePorter, Bobbi and Hernacki, Mike. (2002). *Making Learning Comfortable and Enjoyable.* Bandung: Kaifa.
7. Afiatin, T. (2001). *Experiential Learning to Improve Memory.* Anima, Indonesia Psychological Journal. Vol. 17. No. 1.26-35.
8. Atkinson, Rites L et al. (2000). *Introduction to Psychology Eleventh Edition, Volume One.* Batam: Interaksara Bhinnety, M. E, Sugiyanto & Pudjono, M., (1994). *The Effect of Noise Intensity on Short-Term Memory,* JurnalPsikologi XXI. Vol 1. 28-38
9. Dennison, Paul E., Gail E. Dennison (2008). *Complete Guide to Brain Gym Brain Exercises,* Jakarta: Grasindo.
10. DePorter, Bobbi and Hernacki, Mike. (2002). *Getting Used to Comfortable and Enjoyable Learning.* Bandung: Kaifa.
11. Higbee, Kenneth L. (2003). Sharpening Memory. Semarang: Dahara Prize.
12. Santrock. (2001). Adolescence: Developmental Psychology of Adolescents, 6th ed. Jakarta: Erlangga.
13. Suprajitno. (2004). *Family Nursing Care: Applications in Practice.* Jakarta: EGC.
14. Stuart, Gail W. (1998). Pocket Book of Mental Health Nursing, Translated by Yani, Achir, 3rd Edition, Jakarta: EGC.
15. Sugiyanto. (2010). *Innovative Learning Models.* Surakarta: Yuma Pustaka
16. Walgito, Bimo. (2004). *Introduction to General Psychology. 1. General Psychology.* Yogyakarta: Andi.
17. Widodo Judarwanto. (2009). *Hyperactive / ADHD (Attention Deficit Hyperactive Disorder)*,
18. W. Prasetyo and S. A. Saputra, "The Effect of Brain Exercises on the Memory of Fifth Grade Elementary School.