

Brain Gym Therapy: Focus Attention as an Effort to Improve Student Learning Concentration

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ABSTRAK

Saat ini, semua jenjang pendidikan melaksanakan proses pembelajaran secara daring. Mereka mulai dari pendidikan dasar, menengah, hingga perguruan tinggi. Di tingkat perguruan tinggi, mahasiswa yang biasanya melakukan kegiatan belajar tatap muka dengan dosen dan mahasiswa lain, kini harus melakukan kegiatan yang sama secara virtual. Penelitian ini bertujuan untuk menganalisis apakah terdapat perbedaan tingkat konsentrasi belajar siswa setelah diberikan terapi senam otak dengan gerakan PACE. Penelitian ini menggunakan pendekatan eksperimen dengan desain two-group pre and post-test design. Subyek penelitian ini adalah 60 siswa yang dibagi menjadi dua kelompok, 30 orang di kelompok eksperimen dan 30 orang di kelompok kontrol, yang memenuhi kriteria penelitian. Teknik analisis data menggunakan uji-t sampel berpasangan. Hasil penelitian menunjukkan bahwa terdapat perbedaan konsentrasi belajar siswa setelah diberikan terapi senam otak PACE dengan hasil uji t sampel berpasangan dengan nilai = 0,042 (p kurang dari 0,05). Tidak ada perbedaan konsentrasi belajar siswa setelah diberikan materi terapi senam otak dan konsentrasi belajar dengan hasil uji-t sampel berpasangan dengan nilai = 0,82 (p lebih dari 0,05). Melalui penelitian ini konsentrasi belajar siswa dapat ditingkatkan dengan melakukan gerakan terapi pace brain gym. Peningkatan konsentrasi siswa dapat ditingkatkan dengan melakukan terapi senam otak sebagai kebiasaan setiap sebelum melakukan kegiatan pembelajaran yang diharapkan dapat membantu meningkatkan konsentrasi siswa.

ABSTRACT

Currently, all levels of education carry out the learning process online. They start from primary, secondary, to higher education. At the higher education level, students who usually do face-to-face learning activities face-to-face with other lecturers and students now must do the same activities virtually. This study aims to analyze whether there are differences in the concentration level in the study of students after being treated with brain gym therapy with the PACE movement. This study uses an experimental approach with a two-group pre and post-test design. The subjects of this study were 60 students divided into two groups, 30 in the experimental group and 30 in the control group, who met the research criteria. The data analysis technique used paired sample t-test. The results showed that there was a difference in learning concentration for students after being given PACE brain gym therapy with the results of the paired sample t-test with a value of = 0.042 (p less than 0.05). There is no difference in learning concentration for students after being given brain gym therapy material and learning concentration with the results of the paired sample t-test with a value of = 0.82 (p more than 0.05). Through this study, students' learning concentration can be improved by doing pace brain gym therapy movements. Increasing student concentration can be increased by doing brain gym therapy as a habit every time before doing learning activities that are expected to help increase student concentration.

1. INTRODUCTION

Currently, all levels of education carry out the learning process online. They start from primary, secondary, to higher education. At the higher education level, students who usually do face-to-face learning activities face-to-face with other lecturers and students now must do the same activities virtually. Sudden and mandatory changes in the learning process during the COVID-19 virus pandemic must be supported by good adaptation. Adaptation to change aims to make it easier for students to go through the learning process to achieve success in learning. Student success in learning is influenced by the ability to focus on the material studied.

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Concentration plays a role important in the learning process. Individuals can learn well when they can concentrate well. He must have a habit of being able to concentrate his mind on learning. In line with this, a previous study found that there were 188 people out of 342 respondents had a low concentration category in the online learning period (Winata, 2021). Concentration is an individual's effort to focus on an object to understand and prevent distracted attention (Winata, 2021). Concentration is an individual state of mind that is active due to sensations in growing. These sensations can actively require relaxed conditions and pleasant circumstances. When in a state of tension, individuals cannot make the most of their brains because their minds become empty (Basuki & Faizah, 2020). This brain performance determines an individual's concentration on science (Chyquitita et al., 2018).

Based on research things that can cause an increase in brain function and have a positive influence on concentration, interest, and accuracy, as well as other things such as reactions, planning, to make a conclusion and determination, namely exercise and exercise at the Brain Gym (Nuryana, Aryati & Purwanto, 2010). Many previous studies have used this Brain Gym technology to increase student concentration in face-to-face learning (Basuki & Faizah, 2020; Pratiwi & Pratama, 2020; Septian et al., 2018; Winata, 2021) or in the current pandemic conditions (Angraini & Dewi, 2022; Winata, 2021). Brain Gym also improves brain function in the learning process without age restrictions. In addition, brain gym technology can be applied to children with special needs (Abduh & Tahar, 2018; Barakat et al., 2021; Watson. A & Kelso, 2019). Researchers use Brain Gym therapy to improve the concentration of students during online learning. Students of the Educational Kinesiology Foundation, California, USA, use various movement activities in the brain gym to improve their ability to learn to use brain function as a whole (Setiadi, 2015; Suratun & Tirtayanti, 2020; Yahya, 2016).

Although simple and very easy to do, brain gym has an effect in helping students during learning activities and adjusting to the tensions and demands of daily life (Dennison et al., 2010). Before doing learning activities, students or students need to prepare with PACE. This word has positive eating (relaxed hooks), active (cross movement), clear (brain switch), and energetic (drinking water), which are the four conditions necessary for self-study using the entire brain. Brain gym Therapy is a series of simple movements that focus attention and improve student brain function during online learning activities. This study aimed to determine whether students' learning concentration increased after making movements in Brain Gym Therapy.

2. METHODS

The design of this study is experimental research. Design that has the characteristics of a researcher can control free variables, which means the researcher can sign and determine the treatment of both experimental and control groups (Ratminingsih, 2010). One type of experimental research design used in this study is True Experimental, more precisely, The Pretest-Posttest Control Group Design. The subjects will be included in the experimental and control groups based on a survey conducted on 89 students, which then found the results of 60 students who met the criteria. Furthermore, it was divided into two groups, namely 30 students in the experimental group and 30 in the control group.

In the first stage, the experimental group was given treatment in the form of brain gym therapy with PACE movements. In contrast, the control group was not given treatment but only material about brain gym therapy and learning concentration. After receiving this treatment, Mulawarman university medical students' class of 2019 will be re-measured (post-test). Based on the description of the activities used in this study, the research design used is a Static Group Comparison. The purpose of this study was to measure the effectiveness of brain gym therapy from this study against experimental and control groups. As for the experimental design as stated in Table 1.

Table 1. Experimental Design

Group	Pretest	Treatment	Post-test
Experiment	O ₁	X ₁	O ₂
Control	O ₁	X ₀	O ₂

Remarks:

O1: Pretest before treatment is given

O2: Final test (post-test) after treatment given

X₁: Treatment of the experimental group by applying pace movement brain gym therapy

X₀: Treatment of control groups by providing material on brain gym therapy and learning concentration

The sample in this study was 60 students. The type of sample used is non-probability sampling. The sampling technique in this study is the purposive sampling method, which is the taking of subjects according to the criteria determined by the researcher. The criteria determined by the researcher are, namely, the subject is a medical student class of 2019, Mulawarman University, who has undergone online learning for approximately two semesters and is still undergoing online learning.

The data to be obtained in this study is the influence of Brain Gym Therapy on the concentration of learning with Focus Attention theory, for which this study will use questionnaires. This questionnaire is used to determine the influence of brain gym therapy on student concentration. This research was conducted online with google Forms and zoom media. The research instrument used by researchers in this study is a scale made by researchers based on the theory and aspects (Winkel, 2014). Questionnaires or questionnaires are a technique or way of collecting data indirectly (researchers do not directly ask questions to respondents). The instrument or data collection tool must also be answered or responded to by the respondent. The number of item grains in the study concentration questionnaire was 42 items. The use of initial test instruments and final tests of the questionnaire type in this study aims to determine the concentration of student learning. A Likert scale measures this questionnaire, a psychometric scale with an assessment score interval of 1 – 4 with 1 = very appropriate, 2 = appropriate, 3 = non-conforming, and 4 = very inappropriate.

The data analysis technique used in this study is statistical analysis, namely Independent T-test samples. Before the hypothesis test is carried out, a validity test, reliability test, descriptive test, normality test, and homogeneity test are first held using the help of the SPSS (Statistical Packages for Social Science) computer program version 21.0 for windows.

3. RESULTS AND DISCUSSIONS

Results

The data analysis technique used in this study is statistical analysis, namely the Paired T-Test. Normality of the data using the Kolmogorov-Smirnov Test One Sample test. Signification value, if the signification value > 0.05 ($p > 0.05$), then the data is in the normal distribution. Before the assumption test is carried out, a normality test is first held, and a homogeneity test is held. Normality test to see the storage of observation frequencies studied from theoretical frequencies. The normality assumption test uses analytical statistics techniques, the Shapiro-Wilk normality test, because the subjects are less than 50. The rule is that if $p > 0.05$, the distribution is normal; if $p < 0.05$, the distribution is abnormal.

Based on Table 2, the normality test conducted in the experimental group, pretest results were obtained with a value of $Z = 0.957$ and a value of $p = 0.148$ ($p > 0.05$), while the results of the post-test with a value of $Z = 0.921$ and a value of $p = 0.088$ ($p > 0.05$). The test results based on the rules show that the distribution of variable grains of learning concentration in the pretest and post-test is normal.

Table 2. Experimental Group Normality Test Results

Variable	Shapiro Wilk	Sig
Pretest	0.957	0.148
Post-Test	0.921	0.880

Furthermore, based on Table 3 regarding the normality test carried out in the control group, pretest results were obtained with a value of $Z = 0.932$ and a value of $p = 0.090$ ($p > 0.05$) while the post-test results with a value of $Z = 0.917$ and a value of $p = 0.076$ ($p > 0.05$). The test results based on the rules show that the distribution of variable grains of learning concentration in the pretest and post-test is normal.

Table 3. Control Group Normality Test Results

Variable	Shapiro Wilk	Sig
Pretest	0.932	0.090
Post-Test	0.917	0.076

In this study, homogeneity was tested between the control and experimental groups to determine that the data of the two groups were the same. The calculation uses the Levene test method from the results of the one-way ANOVA test. The rule of the homogeneity test is that variable data is considered homogeneous when the p -value > 0.05 . Based on Table 4 regarding homogeneity tests conducted in the experimental and control groups, a p -value of 0.061 ($p < 0.05$) was obtained. It suggests that the subject groups in the study are homogeneous.

Table 4. Homogeneity Test Results

Levene Statistics	Df1	df2	Sig
1.721	1	28	0.061

The study's hypothesis was to determine the difference in the level of learning concentration in medical students of the Class of 2019 Unmul before and after being given brain gym therapy treatment with PACE movements. In this study, the hypothesis test rule for paired sample t-test is that if $p > 0.05$, H_0 is accepted, and if $p < 0.05$, H_0 is rejected.

Based on [Table 5](#) regarding the results of the Paired T-Test hypothesis test in the experimental group, which aims to determine the concentration of learning in medical students' class of 2019 Mulawarman University before and after being given brain gym therapy treatment, the results of $p = 0.042$ ($p < 0.05$) were obtained.

Table 5. Mean Rank Value Paired T-Test

Group	Pretest	Post-Test	Information
Experiment	28.15	31.85	Increase
Control	30.52	29.48	Decreased

Based on these values, the H_0 hypothesis was rejected, which means that there is a difference in the level of learning concentration after the administration of brain gym therapy treatment with pace movement in the medical students' class of 2019 at Mulawarman University. Based on the results of the Paired T-Test hypothesis test in the control group, which aims to determine the level of learning concentration in medical students' class of 2019 Mulawarman University before and after being given the material on brain gym therapy and learning concentration, the results of the p -value = 0.102 (p) were obtained. > 0.05). Based on these values, H_0 is accepted, which means that there is no difference in learning concentration after giving material on brain gym therapy and study concentration in the medical student's class of 2019, Mulawarman University.

Discussion

The environmental conditions of each student are very diverse, such as noise or not conducive rooms that are too dark or bright, making it difficult for students to focus on lectures. In addition, many other distractions, such as notifications from cell phones, make students shift their focus to check their cell phones. In addition to that, during morning lecture hours and, students are late to get up, they become in a hurry to study online, which causes them to be less focused.

The results of the study can be seen from the results of the analysis on the hypothesis test using a paired t-test which obtained the results of the H_0 hypothesis were rejected which means that there is a difference in the level of learning concentration after giving brain gym therapy treatment with PACE movements in medical student's class of 2019 Mulawarman University. From these results, it can be interpreted that brain gym therapy treatment can increase student concentration, especially during online learning. This result aligns with previous research that brain gym therapy can help increase student focus during online learning ([Anggraini & Dewi, 2022](#); [Kurniawan & Maryanti, 2020](#); [Winata, 2021](#)).

Based on the results of this study it is in the same direction as previous studies that are similar regarding the application of brain gym therapy. Previous study found that students' memory before doing brain gym is included in the sufficient category ([Prasetyo et al., 2017](#)). However, after the brain gym treatment, it increases to be very good. These results align with previous research, which showed that the concentration of the experimental group was higher when compared to the control group after being given a brain gym ([Ali & Aminoto, 2018](#)). Another study showed that brain gyms could reduce aspects that form learning saturation, namely physical fatigue, cognitive fatigue, emotional fatigue, and the blackness of student motivation during online learning during the Covid-19 pandemic ([Kurniawan, D T & Maryanti, 2020](#)). The brain gym therapy movement, which can reduce aspects of learning saturation, can be the main reason brain gym therapy is used as a treatment in this study because it is hoped that it will help students become more concentrated on online learning.

Simple movements in Brain-Gym can stimulate three dimensions of the brain, including the lateral dimension, focusing, and concentration (concentration) which can support the development of emotional, social, intellectual, and physical abilities ([Astuti, 2010](#)). Furthermore, this brain gymnastics makes the individual feel more peaceful. The body becomes fresher, transforming the individual's self ([Apandi, 2019](#)). This exercise can help maintain a balance between the right and left brain to remain optimal. This brain gymnastics repairs fibers in the corpus callosum, providing many two-way neural connections between the

cortical zones of the two parts of the brain, including the hippocampus and the amygdala (Joseph & Jayanto, 2010).

The basis of the brain gym is its interdependence between action, cognitive, and learning techniques (Dennison et al., 2010). Several previous studies have found that applying brain gyms positively affects a person's academic ability, focus, and balance of abilities (Mendrofa et al., 2020; Widanti & Anjasmara, 2021). Brain gym therapy can also help reduce stress, encourage relaxation, maximize brain function, improve memory, and improve body balance (Damayanti et al., 2020). The many good benefits of brain gyms can increase the focusing ability of medical students class of 2019 who are running online learning during the COVID-19 pandemic.

4. CONCLUSION

Brain gym therapy with PACE movements in the sense of the words positive (hook relax), active (cross movement), clear (brain switch), and energetic (drinking water) can increase student learning concentration. Through this study, students' learning concentration can be improved by doing pace brain gym therapy movements. Increasing student concentration can be increased by doing brain gym therapy as a habit every time before doing learning activities that are expected to help increase student concentration.

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