Improving Early Childhood Creativity Through Brain Gym Method

Bayti Hasnani*, Cahniyo Wijaya Kuswanto, Nilawati Tadjuddin

Abstract:
The purpose of this study is to ascertain how Brain Gym exercises affect young children's creativity in Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung. This study employs an experimental design, specifically the Nonequivalent Control Group Design, which is a quasi-experimental research methodology. Instruments for gathering data make use of documentation and observation. Utilizing the formula for product moment correlation, evaluate the validity of the instrument. Use the Cronbach's alpha calculation to assess the instrument's dependability. A normalcy test utilizing the Kolmogorov-Smirnov formula. Use the F test to determine homogeneity. Use the independent t test to evaluate the hypothesis. The hypothesis test results indicate that there is a relationship between brain gym activities and early childhood creativity in Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung. Specifically, the value of \( t_{\text{count}} > t_{\text{table}} \), or 3.179 > 2.013, indicates that this relationship exists.

Keywords: Brain Gym, Creativity, PAUD

1. INTRODUCTION

Early childhood education facilities must include a range of activities that support the development of the brain, language, social and emotional skills, physical health, and motor skills (Guo et al., 2023). Tadjuddin et al. (2021) assert that the goal of early childhood education (PAUD) is primarily education that is structured to support children's overall growth and development or to emphasize the development of each child's unique personality. Along with teaching the five senses via classes and exercises, he also included games into the school's curriculum for the Taman Anak (Udju et al., 2023). With varied activities and in accordance with the principles of development, children will develop all their potential well and balanced.

The degree to which a person can concentrate on the material they are studying determines how well they learn. Consequently, maintaining focus is crucial for success (Faridah & Ariyanto, 2021). The functioning of the brain is intimately associated with concentration. Concentration levels can rise when brain function is at its peak. The entire body is involved in learning, thinking, creativity, and cognitive processes in addition to the brain (Johnstone et al., 2022). Our bodies are the source of sensation, movement, emotion, and brain integration processes (Suratun & Tirtayanti, 2020). Thus, a system that can link the mind and body is required (Heni & Nurlika, 2021). Brain gym is a set of basic exercises designed to bring the mind and body together (Nurmalasari & Susilowati, 2022). Through Brain Gym children are trained to be calm and more focused, so they are able to absorb information and communicate better (Stavrinou et al., 2020). Children use all of their limbs when they practice the Brain Gym approach, which helps them feel at ease and prepared to resume learning.

The creativity possessed by each student will vary. Learning implementation can help develop student creativity (Retnowati & Nugraheni, 2024). Creativity is the ability to create something new or a combination of pre-existing elements, students who remain enthusiastic and remain concentrated and can do tasks from teachers very well with high creativity can get results and achieve in learning, in addition to creativity students are expected to concentrate on capturing learning because if students can concentrate well what the teacher explains is easier for students to understand (Mailani et al., 2022). Lack of practice, a lack of imagination in shaping, a lack of curiosity about new things, a lack of experimentation, a lack of openness to new stimuli, and a lack of daring to try can all hinder children's creativity. This is because educators' creativity in nurturing children's creativity is still lacking, as is the case in RA Ulul Albab. Depending on the issue and how crucial it is for kids to grow creatively. Thus, scientists are interested in finding out how much the Brain Gym program at RA...
Ulul Albab Tulung Batuan Kotabumi enhances kids' inventiveness.

By using suitable and creative techniques, it is possible to enhance the development of early childhood creativity (Dewi et al., 2024). Strategy is an outline of direction for action in an effort to achieve predetermined goals (Li et al., 2024). It can be said that strategy is an arrangement of potential methods and resources in order to be efficient in obtaining the results as planned. Creativity can make children get pleasure through creating something new. Creativity is an ability possessed by a person in creating a work obtained from various ideas. In this process, children will process their ideas into something (Behnamnia et al., 2020).

Therefore, the existence of Brain Gym is the best way to tackle this issue since its motions may encourage, calm, and relax kids while they study, which will boost their creativity. We conclude that Brain Gym is a set of basic exercises designed to enhance kids' learning capacities, including full-body creative thinking. One of the best tools for enhancing young children's creativity is Brain Gym. This supports other studies that found a substantial disparity in kids' cognitive abilities before and after gymnastics. This study differs from other research in that it focuses on using brain gym exercises to boost children's creativity, whereas earlier studies used the same activities to improve early childhood cognition (Awantari et al., 2023).

Based on this explanation, brian gym is a method that is quite needed in research in order to help students increase their creativity. So, based on this, the purpose of this study is to determine the effect of Brain Gym activities on early childhood creativity at RA Ulul Albab. Therefore, in this study, research will be conducted with the title "The Effect of Brain Gym Method on Increasing Early Childhood Creativity at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung".

2. MATERIAL AND METHOD

This research method is a way for researchers to collect research data scientifically where the data obtained has certain objectives and uses to solve problems in this study (Cheong et al., 2023; Han et al., 2022; Hirt et al., 2024). Research methodology is also defined as knowledge of the various methods used in research (Çakar & Aykol, 2021). One of the important things that must be determined in research methods is determining the right method based on the research objectives (Waruwu, 2024). Research methods include various techniques such as sampling techniques, measurement techniques, data collection techniques and data analysis techniques. Research method is a scientific way of obtaining data for specific purposes and uses. The scientific method means that research activities are based on scientific characteristics, namely rational, empirical, and systematic. Rational means that research activities are carried out in a way that makes sense, so that it is affordable by human reasoning (Naga & Herawati, 2023). Empirical, means that the methods used can be observed by human senses, so that other people can observe and know the methods used. Systematic, is a process used in research that uses certain steps that are logical (Raharja & Nuracliadija, 2023; Rayhandito & Alamin, 2023). The research method that will be used in this research is quantitative method. Quantitative methods are methods in which the presentation of data is in the form of numbers or numbers and the data used are statistical with the aim of testing hypotheses (Bauer et al., 2021; Kurniawan et al., 2024; Taherdoost, 2022).

So from the description above it can be concluded that this research method is a way for researchers to collect research data scientifically where the data obtained has certain purposes and uses to solve problems in this study, the research method that will be used in this study is quantitative method. Quantitative method is a method in which the presentation of data is in the form of numbers or numbers and the data used is statistical with the aim of testing the hypothesis.

The research subject is the subject that the researcher will aim to study (Hiebl, 2023; Sardana et al., 2023; Suriani et al., 2023; Usiono et al., 2021). If we talk about research subjects, we must first talk about the unit of analysis, namely the subject that will later become the center of attention of the research target. The research subjects referred to in this study are teachers and students at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi. The determination of the class subject was carried out when the research began to enter the field and during the research.

This study employed a Nonequivalent Control Group Design as a Quasi-Experiment research design. There are two groups in this design: the experimental group and the control group. Two sets of people received different treatment. While the control group did not get the brain gym therapy—that is, gymnastic activities—the experimental class received treatment through these activities. The normality and homogeneity tests, which are precursor tests, are the analysis method employed. An independent t test is then run once the data has been homogenous and
The goal of this study is to investigate the topic of improving early children's creativity at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi by means of brain gym exercises. Specifically, the study's independent variable is Brian's gym activities. Creativity is the linked variable in this study. The study's sample consisted of 50 youngsters who were pupils at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi. There are two classes, or forty kids, in the sample. One class served as the control group and one as the experimental group. The steps employed in the research are as follows:

**Figure 1. Research Steps**

The research employed the following methods for gathering data: When collecting data for a study, researchers may choose to employ observational methods. These methods are most useful when the subjects of the study are small enough to allow for direct observation, such as human behavior, work processes, natural symptoms, etc. Planning-related categories for observation include organized and unstructured observation, while implementation-related categories include observation with participation and observation without it.

Data collection techniques with documentation are evidence or authentic records of events that have passed (Nieminen et al., 2023). Documents can be in the form of writings, images, or monumental works of a person. The documentation that will be used in this research is in the form of photographs. In this study, documentation is used for authentic evidence or records when research is taking place at RA Ulul Albab Tulung Batuan Kotabumi.

### 3. RESULT AND DISCUSSION

#### 3.1 Results

This discussion will present the data obtained in the field. The information that will be presented includes the highest score, lowest score, and average.

#### 3.1.1 Creativity Data for Control Class and Experimental Class Learners

Based on data on learning creativity scores in experimental and control classes. The data can be seen in the attachment. A summary of the results of the data on students' speaking skills can be seen in the following table:

<table>
<thead>
<tr>
<th>Score</th>
<th>Experiment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest</td>
<td>77</td>
<td>70</td>
</tr>
<tr>
<td>Lowest</td>
<td>52</td>
<td>32</td>
</tr>
<tr>
<td>Average</td>
<td>62.72</td>
<td>56.48</td>
</tr>
</tbody>
</table>

It is evident from the above table that the experimental class's average learning creativity score is greater than that of the control group. The control class had an average value of 56.48, but the experimental class received an average value of 62.72. It is evident from these values that there are differences between the two courses' approaches to acquiring creativity. Given that the experimental class value is greater than the control class value, the experimental class is more likely than the control class to be creative learners.

#### 3.1.2 Data Analysis

1. **Instrument Validation Test**

An instrument is said to be valid if it can reveal data from variables to measure the validity level of the question under study accurately. In this study, the question items were declared valid if the Corrected Item-Total Correlation value obtained was greater than or equal to 0.444. The value of 0.444 is calculated by looking at the Distribution Table of $r_{table}$ values with a significance of 5%. It is known...
that with \( N - 2 = 20 - 2 = 18 \) at a significant level of 5%, the \( r_{\text{table}} \) value is obtained at 0.444. \( N = 20 \), because the number of students is 20 children. The results of the instrument test calculation were 5 questions that were declared invalid and there were 20 valid statements. Questions that are said to be invalid are numbers 6, 7, 14, 16, 24. While 20 valid questions include numbers 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25. Based on the validity criteria, valid questions are used to collect data. So that question items number 6, 7, 14, 16, 24 are discarded (drop) because these question items cannot measure student learning creativity.

2. Instrument Reliability Test

An instrument that is said to be reliable is an instrument that when used several times to measure the same object, will produce the same data. The instrument is categorized as good if \( r_{\text{count}} \geq 0.70 \). In accordance with the calculations carried out on 25 questions, the value of \( r_{\text{count}} = 0.92 \) was obtained. These results are then compared with the provisions of the value of \( r_{\text{count}} \geq 0.70 \), then \( 0.92 \geq 0.70 \). Thus, the instrument used is good and trusted as a data collection tool, so that research activities can be continued in the next process.

3. Analysis Prerequisite Test

a. Normality Test

The normality test uses the one kolmogorof smirnov test comparing Sig. > \( \alpha \) with \( \alpha = 0.05 \) or the \( L_{\text{count}} \leq L_{\text{table}} \) value, so the data is normally distributed. The following are the results obtained:

### Table 2. Normality Test Results

<table>
<thead>
<tr>
<th>Ability</th>
<th>Class</th>
<th>( L_{\text{count}} )</th>
<th>( L_{\text{table}} )</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Creativity</td>
<td>Experiment</td>
<td>0.087</td>
<td>0.174</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>0.152</td>
<td>0.174</td>
<td></td>
</tr>
</tbody>
</table>

Judging from table 2 for the Kolmogorof Smirnov test for the experimental class and control class. The data in the experimental class obtained the value of \( L_{\text{count}} = 0.087 \) and the control class produced \( L_{\text{count}} = 0.152 \) with the value of each \( L_{\text{table}} = 0.174 \) so that both were declared normally distributed.

b. Homogeneity Test

The homogeneity test using the F test shows that the value of \( F_{\text{count}} \leq F_{\text{table}} \), then the data is homogeneously distributed.

### Table 3. Homogeneity Test

<table>
<thead>
<tr>
<th>Ability</th>
<th>( F_{\text{count}} )</th>
<th>( F_{\text{table}} )</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Creativity</td>
<td>0.061</td>
<td>1.984</td>
<td>Homogeneous</td>
</tr>
</tbody>
</table>

Based on Table 3, it is obtained that the value of concept understanding ability is \( F_{\text{count}} = 0.061 \) and \( F_{\text{table}} = 1.984 \), thus obtaining homogeneous distributed data criteria.

c. T Test

If the data has been distributed homogeneously and normally, then for hypothesis testing, an independent t formula is used. The results of the concept mastery hypothesis test can be seen in the table below:

### Table 4. Hypothesis Test Results

<table>
<thead>
<tr>
<th>( t_{\text{table}} )</th>
<th>( t_{\text{count}} )</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.013</td>
<td>3.179</td>
<td>The independent variable affects the dependent variable</td>
</tr>
</tbody>
</table>

Based on the table above, it shows that the results of testing the hypothesis of learning creativity for the independent t test, the results of the \( t_{\text{count}} > t_{\text{table}} \) value, namely 3.179>2.013 , it can be concluded that there is an effect of the influence of brain gym activities on early childhood creativity in RA Ulul Albab Tulung Batuan Kotabumi.

3.2 Discussion

This research was conducted at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung in class B1 and class B2. This research was conducted starting on January 8. This research was conducted for 4 meetings (2 experimental class meetings and 2 control class meetings). In this study, class B1 was the experimental class and class B2 was the control class. The experimental class and control class were selected using saturated sampling technique because, saturated sampling technique is a sampling technique if all members of the population are used as samples.
Experimental classes and control classes in the learning process receive different treatments. The experimental class amounted to 24 students and the control class amounted to 23 students. In the experimental class (B1) the learning process uses the brain gym method and students play an active role in learning. While in the control class using gymnastic techniques.

Then before conducting research, the student creativity instrument was tested first. The trial involved 19 students and 25 questions. So that the results of the trial are that there are 5 questions that are declared invalid and there are 20 valid statements. Questions that are said to be invalid are numbers 6, 7, 14, 16, 24. While 20 valid questions include numbers 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25. Based on the validity criteria, namely the criteria if the correlation coefficient value \( r_{\text{count}} \geq r_{\text{table}} \) and is said to be invalid if the correlation coefficient value \( r_{\text{count}} < r_{\text{table}} \) So that question items number 6, 7, 14, 16, 24 are discarded (drop) because these question items cannot measure student learning creativity.

After testing and getting 20 valid questions, the researcher conducted research using the valid instrument. The research involved 2 classes, namely the experimental class, the learning process using the brain gym method and students playing an active role in learning and the control class using gymnastic techniques. After the data obtained, a prerequisite test was carried out, namely the homogeneity test and the normality test. The results of both tests are normal and homogeneous. Then the hypothesis test is carried out in the form of a t test which gets the results of the \( t_{\text{count}} > t_{\text{table}} \) Value, namely 3.179 > 2.013, it can be concluded that there is an effect of the influence of brain gym activities on early childhood creativity in RA Ulul Albab Tulung Batuan Kotabumi.

Brain gym activities by making and drawing flowers are carried out in the classroom to develop the learning creativity of children in class B1 at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung and it turns out to produce good child development or creativity. The results of the research will be described by researchers to make learning creativity through brain gym, arranging children's seating positions, and providing opportunities for children to understand and apply the process of activities to develop children's learning creativity through brain gym. The results of the research conducted on the observation of the process of children's speech development in the experimental class through the brain gym method. In the experimental class, the learning process is associated with active learning as usual by developing important indicators contained therein that are structured and will make it easier for students to solve problems.

Brain Gym activities have a positive influence on early childhood creativity at Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung. This is in accordance with Dennison's theory which states that Brain Gym also develops various skills, one of which is learning skills. Learning skills have more specific skill development, one of which is creative thinking (creativity). This is in accordance with the theory and research from Denisson who also developed the theory that some children's difficulties such as reading, and motor development problems can be stimulated by growing and relaxing the right brain and left brain by creating a pleasant learning atmosphere by doing light movements (gymnastics) (Lestari & Lova, 2024). The limitation of this study is that researchers are only able to apply the use of Brain Gym in school institutions to increase children's creativity and hope for further researchers to explore more deeply about other factors that can increase children's creativity.

4. CONCLUSION

In Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung, there is an impact of Brain Gym exercises on early childhood creativity, according to the study's analysis of the data. The hypothesis test findings show that there is a relationship between brain gym activities and early childhood creativity in Raudhatul Athfal Ulul Albab Tulung Batuan Kotabumi North Lampung. Specifically, the value of \( t_{\text{count}} > t_{\text{table}} \), or 3.179 > 2.013, indicates this.

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