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## Title Application of Brain Gym in Fine Motor Development of Early Children (Study at Lembaga Pendidikan Anak Hebat Indonesia Unit 1418 Desa Plunturan Ponorogo)

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### ABSTRACT

This study aims to describe the application of brain age in the subtle development of early childhood in Indonesia's great children's educational institution unit 1418 Plunturan Ponorogo Village. This research is a type of qualitative descriptive research. Located at the AHE Institution Unit 1418 Plunturan Village, Pulung District, Ponorogo Regency using the Purposive Area technique. Informants used purposive sampling technique. Data collection techniques using interviews, observation and documentation. The technique of checking the validity of the data uses observation, persistence and triangulation of sources, techniques and time. Data analysis went through four stages, namely data collection, data reduction, data presentation, and data verification. The results of the study stated that the number 8 sleep brain exercise applied at the AHE institution really helped early childhood in learning motor skills, especially in reading and writing. Through brain exercises that are applied to institutions can help develop children's development to suit the stages that are passed by children so that they are able to achieve the level of mastery of skills spontaneously.

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### INTRODUCTION

There are 3 types of education in Indonesia, namely formal, non-formal and informal education. Tutoring is included in non-formal education channels, and one of them is the Indonesian Great Children Education Institute Unit 1418 which is located in RT/01.RW/02 Plunturan Village, Pulung District, Ponorogo Regency. This AHE institution is one of the educational institutions organized by private managers who are engaged in additional services, skills development and study consulting. In this case, the AHE institution focuses more on

reading and writing education using fun and structured methods so that children can learn easily and interestingly. Students who take part in the AHE program are preschoolers with an age range of 4.5 to 7 years.

Santrock (in Saputra & Setianingrum, 2016) explains that one of the skills that children need to develop from an early age is improving fine motor intelligence. Improved fine motor skills related to increased skills to carry out various activities with the fingers. In this fine motor development the movement does not require a lot of energy because it is only done by small muscles, but requires careful adjustment.

Sundayana, et al (2020) explained that based on data from UNICEF (United Nations Children's Fund) children at an early age who have lagged fine motor and gross motor development are 1,375,000 per 5 million developmental disorders. In addition, data from the WHO (World Health Organization) conveys that 5-25% of early childhood has impaired cerebellar function which is classified as lagging fine motor development. Impaired motor growth can be triggered by disorders of the brain at birth or after birth that do not strengthen children to develop motor skills.

The application of brain exercise in fine motor development of early childhood which is applied at the AHE Unit 1418 institution is based on the basis of helping children to avoid learning difficulties because they study too hard so that children become stressed, besides that brain exercise can help overcome slow brain performance so that This results in certain parts of the brain not functioning properly which results in a lack of concentration and enthusiasm for learning in children. The existence of brain gymnastics that is applied to the AHE unit 1418 institution is expected to help children who find it difficult to learn due to fine motor limitations. Brain exercise also has a division of simple movements designed to stimulate brain optimization to facilitate learning activities. With this explanation, the researcher wants to examine research related to brain exercise in fine motor development in early childhood entitled "The Application of Brain Gymnastics in Fine Motor Development in Early Childhood (Study at the Indonesian Great Children's Education Institute Unit 1418 Plunturan Ponorogo Village)".

## **METHODOLOGY**

This research is a qualitative descriptive study. Descriptive research is research with the aim only to describe the observed events without looking for correlations between other variables (Masyhud, 2016). Furthermore, according to Masyhud (2016) qualitative research is research that prioritizes aspects of perception in detail and depth by examining problems one by one. Qualitative research aims to study phenomena that occur on research topics such as character, perception, motivation, action, etc., by means of descriptions in the form of words and language (Moleong, 2019).

The place of research is at the Indonesian Great Children Education Institute Unit 1418 Rt/01 Rw/02 Plunturan Village, Pulung District, Ponorogo Regency. Determination of the research site using a purposive area technique, where the purposive area technique is defined as the selection of a research location based on the objectives and research focus in accordance with the research. The research time used was six months.

In this study, researchers used a purposive sampling technique that was targeted to identify informants when searching for data and information. According to Sugiyono (2019), purposive sampling is a method to identify informants with special considerations, and researchers select samples with certain criteria that meet the research objectives, which are expected to respond to

research cases. Informants in this study consisted of key informants and supporting informants. The key informants in this study were educators at the Great Children's Education Institute Unit 1418 Plunturan Village, while the supporting informant was the head of the Indonesian Great Children's Education Institute Unit 1418 Plunturan Village.

Data collection techniques used interview, observation, and documentation techniques. Observation activities carried out in the form of researchers going directly to the research site and making direct observations of the research subjects. This process is carried out consistently starting from pre-study until the research is completed in order to obtain the desired data. Interview activities were carried out in the form of extracting data regarding the application of brain gymnastics to the lateral dimension, the dimension of focusing and the dimension of concentration in the fine motor development of early childhood. While the documentation carried out is in the form of documenting all activities that take place in teaching and learning activities at AHE institutions such as interviews, teaching and learning activities and documentation in the form of photos while carrying out the steps of learning brain gymnastics.

The technique of checking the validity of the data used is the extension of observations, increased persistence and triangulation in the form of triangulation of sources, techniques and time. In the observation extension technique, the researcher returns to the field to re-check whether the data obtained is valid or not. Researchers come directly to the field to look for data, both observations and interviews, which are used to establish a closer relationship between the researcher and key informants and supporting informants so that they can trust each other when providing real information. In increasing perseverance, researchers read references related to the application of brain exercise in fine motor development in early childhood. Researchers also make continuous observations at the research location directly or virtual.

Source triangulation was applied to several sources, namely key informants and supporting informants. Researchers conducted interviews to obtain data on the application of oak gymnastics in fine motor development of early childhood to RF, TH and DKS as tutors as key informants. While the triangulation technique was applied through the use of interview, observation, and documentation techniques. The application of triangulation techniques in the field is that researchers not only conduct interviews with informants but also make observations of the same informants and match the results of data or information from interviews and observations whether they are the same or not. The researcher compared and checked the correctness of the data based on several different informants, namely DS supporting informants and key informants RF, TH, DKS as key informants using the same technique, namely interviews. In time triangulation, researchers conducted interviews, observations and used other techniques in different situations and times. In this case, researchers need more than one time research in order to obtain valid data from informants, namely in learning the morning shift and afternoon shift as well as at different dates and times.

The data analysis technique used using data analysis model Miles and Huberman (in Sugiyono, 2019), suggests that there are four stages used, namely data collection, data reduction, data presentation, and drawing conclusions or data verification at the AHE Unit 1418 Plunturan

institution. Data reduction is reducing and summarizing the data that has been obtained previously, both observation data, interviews, and documentation and then selected according to research needs. Data Presentation The activities carried out are in the form of presenting data in the form of descriptive text to explain the research results in depth and easy to understand. Data verification is done by analyzing the results of observations, interviews, and existing documentation using a theory that is in accordance with the existing problem formulation, then conclusions and findings will be drawn from the research that has been done. Thus the research conclusions can answer the identified problems.

## RESULT AND DISCUSSION

The application of brain exercise in fine motor development of early childhood at the AHE Unit 1418 institution went well. Brain exercise that is applied occurs in 3 dimensions of the brain which has its own functions and benefits, namely:

### 1. Lateral Dimension

Based on the data exposure, it can be drawn broadly from the research findings that brain exercise can optimize children's learning abilities. Brain exercise on the lateral dimension will help with activities related to communication. With brain exercise, it can also help children to absorb communication skills more quickly because it increases the acuity of hearing and vision. The existence of this brain exercise, especially in the lateral dimension, has proven to be very helpful for children, especially those who tend to have difficulty writing and reading. In the teaching and learning process, of course, communication is very influential in the stages of children's learning. With brain exercise, children also become more enthusiastic so that learning becomes more optimal and easy to enter into the brain. Brain exercise is also very helpful for children to distinguish right and left, this of course also has an effect in distinguishing some ambiguous letters such as letters b and d then p and q so that children do not experience dysgraphia or write letters upside down and dyslexia or difficulty reading.

In learning, coordination between the two hemispheres of the brain is rarely carried out, especially in the development of the right hemisphere. Gowan (in Murniati, 2012) agrees that learning errors are a lack of attention to the development of right brain function. This is different from the left hemisphere of the brain which is often given stimuli such as reading, writing and counting (calistung). According to Bright (2013) in Widiati, et al (2021) said that the lobes integrate various information in the body and control body movements through motor signals. The motor signals are then sent to the peripheral nerves. The most important part of this communication is the parieto-occipital junction, which is where the peripheral visual input transforms to reach with the hand. Lateral dimension is for the right and left brain which aims to improve learning skills. These actions include listening, seeing, writing, moving, and having a positive attitude. These movements allow the child to acquire communication skills more quickly. With the brain exercise at the AHE unit 1418 institution, it is proven that children can absorb communication skills more quickly. With brain exercises in the lateral dimension, namely for the left and right hemispheres of the brain, children will become better at communication including listening, seeing and writing.

### 2. Focusing Dimension

Based on the findings in the field, the brain exercise which was implemented at the Indonesian great children's educational institution unit 1418 really helped children to start

maximizing their focus when teaching and learning activities began. As we know that lack of focus results in a lack of self-expression, so this needs to be considered so as not to interfere with the child's learning process. Early childhood has a low level of focus, therefore there is a need for brain exercise that can help avoid problems such as underfocused, lack of attention, and a lack of understanding of children in learning because this brain exercise can release barriers to focus with activities on the back and front brain.

The focusing dimension relates to understanding. According to As'adi (2011) in Widiati, et al (2021) said that children with high IQs will certainly understand instructions faster, which will speed up the learning process. Like children with good EQ scores, their concentration is well maintained during the learning process because their emotions can be well controlled as well. Based on this, it is related to the different levels of children's ability to understand instructions. There are some who have good focus so that their level of understanding is maximized, but some children are also less enthusiastic when receiving instructions from their teacher so that their understanding is not good. The focus dimension describes activities related to understanding. In understanding anything, of course, requires focus. The range of focus and concentration in early childhood is the ability to focus attention and thoughts on an object or activity within a certain time. The concentration range of children is also adjusted according to their age. For example, the focus range of children aged 6 years is only 18 minutes. Furthermore, at the Indonesian great children's education institution unit 1418 Plunturan Village, it provides a learning time limit for children, which is a maximum of 30 minutes which is also divided into 6 stages or learning steps. In this case brain exercise is also an important factor that really helps children focus on learning.

### **3. Centering Dimension**

In accordance with the results found in the field that there is a concentration of children in the AHE institution unit 1418 Plunturan Village after doing brain exercises where they can carry out learning activities skillfully. Children are also able to respond appropriately and quickly to something instructed by the teacher or tutor.

According to Guslinda, et al (2013) said that the dimension of concentration helps a person think calmer, more comfortable and more positive. The dimension of concentration in brain exercise is related to organization or regulation. In this case the dimension of concentration is also related to the child's ability to focus and understand and understand something new and express what is already known. Brain exercise serves to relax the body in the dimension of concentration. Children at the AHE institution can also participate in teaching and learning activities comfortably and enjoyably because at the beginning of learning they do brain exercises while humming so that the learning atmosphere is not tense. This is in accordance with the function of brain exercise to relax the body in the dimension of concentration.

Furthermore, the brain exercise implemented by the AHE unit 1418 institution can run well at the motor skill stages, namely the cognitive stage, associative stage, and automatic stage.

#### **1. Cognitive Stage**

Based on the data exposure, it can be concluded that in general the research findings are that at the cognitive stage there is a process of recognizing the environment where children begin to try new things related to the information they receive while learning. They begin the process of observing, remembering and thinking. At Indonesia's great children's education institution unit 1418 Plunturan Ponorogo Village, the teacher or tutor provides information to children and conveys all the concepts that students will learn. Usually the teacher makes introductions first so

that communication is well established so that learning can also run smoothly. Furthermore, the teacher also introduced the AHE method with 6 learning steps, namely brain exercise, remedial, reading modules, enrichment, writing, then ending with a game.

The cognitive stage in the fine motor development of early childhood at the great children's educational institution unit 1418 Plunturan Village went well according to the stages. At this stage there is an introduction to the environment. According to Marinda (2020), cognition is defined as the process of recognizing everything from the life process that starts from the individual's environment and makes it an integral part of the overall behavior of the individual. This is in accordance with the introductory stage carried out at the Great Children's Education Institution Unit 1418 Plunturan village related to the introduction of the environment starting from the senses, namely children use their sensory devices such as eyes to see and ears to hear and the sense of touch and skin used to hold pencils and tools write another.

In the theory of stages of child development by Piaget there are 4 stages, namely sensorimotor, pre-operational, concrete operations and formal operations. In this case, when viewed based on the age of the students who learn to read and write at the AHE institution, namely with an age range from 4.5 to 7 years, it enters the pre-operational stage where children have started to present the world using pictures and words or sentences. Therefore, at this age children are very good if they start to be introduced to reading and writing. at the pre-operational stage, this means that children have successfully passed the sensorimotor stage, namely the child learns how to work the limbs. The results of research in the field show that children can already learn how their body parts work, for example the eyes to see, the ears to hear, the nose to smell, and the sense of touch, namely the skin. The next stage has also been passed well, namely the pre-operational stage where children at the AHE institution can start their motor skills by presenting the world of pictures, words and sentences where the characteristics of this stage are that children can have language skills. At this stage the child can also follow the instructions of the teacher or tutor well.

## **2. Associative Stage**

Based on the data exposure, it can be concluded that in general the research findings are that at the associative stage, children are able to capture the understanding of the movements being studied. Usually children have done the exercise repeatedly to strengthen the stimulus and response. Therefore, the associative stage is also called the training phase. At this stage, children usually begin to practice brain gymnastic movements according to the concepts they have understood and known beforehand. They do brain exercise by holding a pencil in their left hand first then make the number 8 sleep while humming 2 times, then the pencil is moved to the right hand and make the number 8 sleep also by humming 2 times. Next, the pencil is held using both hands while making the number 8 sleep accompanied by humming 2 times, the same as before.

Lutan (1988) in Mustafa & Sugiharto (2020) said that this associative stage is a stage for perfecting movement patterns. Usually at the associative stage, children begin to understand the concepts of motion that they have learned and can implement them according to their abilities. In this case, usually the children have succeeded in practicing it by practicing repeatedly. Based on data analysis that has been carried out in the field, at this associative stage children begin to understand movements from their motor development to a complete series of movements and their movement skills are increasingly complex and sustainable.

## **3. Auto Stage**

Research findings at the AHE institute in the automatic stage are related to the ability of children who have reached the level of mastery of movement, where they can perform

movements spontaneously. After passing the associative stage or training, finally the children can do brain exercise activities and write skillfully and can respond quickly and precisely to what is instructed by the teacher or tutor. With brain exercise, it also helps children's ability to write. At the automatic stage, children are even able to carry out writing instructions with dictation from the teacher or tutor without being assisted by small dots that are connected as at the beginning of learning at the introduction and practice stages. They are even more enthusiastic about writing themselves and ask to be given more writing assignments than before because they feel they can do it themselves so there is satisfaction and pleasure because they can complete the assignments from the teacher or tutor well and get rewards in the form of grades and stars.

The automatic stage is the last stage in the motor learning process. According to Winarno (1995) in Mustafa & Sugiharto (2020) said that "in automatic implementation, students who learn skills are easier to complete skill assignments, this means that the stress experienced by students is decreasing". As is the case based on findings in the field, children at the AHE Unit 1418 Plunturan village can carry out motor activities skillfully. Based on this, the automatic stage in the motor learning process stage at the great children's educational institution unit 1418 Plunturan Village went well. Because after passing through the cognitive and associative stages or exercises, children can do their own tasks spontaneously without the help of the teacher. This means that they can reach a mastery level in fine motor learning and can pass the 3 stages of motor learning well

## CONCLUSION

Based on the results of research and data analysis related to the application of brain exercise in fine motor development of early childhood at the AHE unit 1418 institution, it can be concluded that the application of the number 8 sleep brain exercise applied by the institution in fine motor development can be carried out well. Because brain exercise helps optimize the 3 dimensions of the brain, namely the lateral dimension which helps children to be able to receive and understand learning well, then the focusing dimension is proven to help children to focus more on learning because they can coordinate their eyes and hands and cross the line while humming together. The third on the youth dimension can help children show their emotions because the learning atmosphere is comfortable and not awkward. Brain exercise also helps motor growth by going through 3 stages correctly, starting from the cognitive, associative and automatic stages where children can perform their fine motor tasks, namely writing spontaneously.

Suggestions for educators are to always improve the quality of their teaching in understanding the different characters of each child which of course also has different stages so that it can be ensured that the teaching and learning process runs optimally as expected, then the method applied, hopefully it can be maintained and realized as well as possible so that children can take part in learning comfortably in order to get good results as has been done so far with evidence that hundreds of graduates have successfully read and written from the AHE unit 1418 institution.



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