

# Brain Gym Optimization Methods in Improving Early Age Child Fine Motor Skills

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## ABSTRACT

Golden age is the most important period for the formation of knowledge and behavior of children. Optimizing the method of brain gym in improving fine motor capabilities at the age of Pre school is needed, the goal is to know the application process Brain Gym method (brain exercise) in improving fine motor skills of early childhood. This research used qualitative narative inquiry. The result this study shows that Brain Gym method is proven as an effort that can improve children's fine motor skills, that the development of children's fine motor skills can be seen from being able to train the muscles of the hand / fingers, being able to coordinate muscles and eyes, being able to write several letters, and being able to hold a pencil properly, being able to draw something meaningful to children and being able to draw it can be recognized by others, able to do hand movements squeezing opposite shoulders while squeezing and the head looks towards the shoulder.

**Keywords:** *Brain gym, preschool, soft skill*

## 1. INTRODUCTION

Early childhood is the period known as the golden age (Golden Age). The most important period for the formation of knowledge and behavior. During this period, children grow and develop optimally in various aspects of development such as cognitive, language, social, emotional, moral and physical motor religion. Brain Gym is a method comprising various basic movements to stimulate and balance all parts of the brain that includes left brain-right, up-down and front-rear. These movements have been grouped according to the areas of the brain. Brain Gym is best used at the beginning of the learning process especially when accompanied with songs or music that is cheerful and happy. Brain Gym movements performed with intensity, fast and attractive to promote the spirit of a child after a series of brain exercises. Based on the theory raised by Paul E Dennison, Ph.D. [1], which states that Brain Gym can improve a child's development and learning spirit children also help children who have difficulty learning. Brain Gym (brain exercise) is a series of simple body movement-based exercises Yanuarita, [2].

Research on Brain Gym has been examined previously by Aryati Nuryana and Setiyo Purwanto [3] entitled Effectiveness in Increasing Concentration of Brain Gym Children Study. This study aims to determine the effectiveness of Brain Gym in increasing the concentration of learning in children. Children often have to struggle with learning agenda not only when he was in school but also at home. By forcing the brain to work very hard, there will be an imbalance in the brain between right brain and left brain, also can cause fatigue in the brain so that the concentration in children learning to decrease. From this research result is that Brain Gym is very effective in increasing the concentration of learning in children. Further research by Renda Septian, Jajat Darajat [4] entitled Increasing the Ability of concentration through the

Implementation of Brain Gym. This research aims to improve the ability to concentrate on primary school students.

Based on observations conducted by researchers showed that the lack of fine motor skills in early childhood caused by a lack of educators in providing learning more interactive and attractive so as to make children get bored quickly to keep learning. Such conditions can hamper the child's fine motor skills. Therefore, the researchers raised the title of a paper on " Brain Gym Optimization Methods In Improving Early Age Child Fine Motor Skills" Researchers hope that the title of this research on Brain Gym can be optimized to improve fine motor skills of children.

## 2. THEORITICAL REVIEW

### 2.1 Fine motor skills

Fine motor skills is organizing the use of a group of small muscles like the fingers and hands that often requires precision and coordination of eyes with his hands, skill covers the use of the tools for work and small objects or control of the machine, eg typing, menjahit , and others Sumantri, [5]. This capability involves neuro-muscular coordination over which require accuracy to succeed. The ability of this type are often referred to as the capabilities that require eye-hand coordination. Examples of this capability is to write, draw and play piano. The development of fine motor skills will affect the child's readiness in writing (language development), training hand to eye coordination. Not only is it the capability of view is also a fine motor activities. Training child's ability to look to the left and right, up and down which is important for the preparation of the initial reading also train hand-eye coordination. Great progress in improving fine motor occurs in early childhood. Fine motor coordination of children at the age of 4 years has increased substansially and more precise. At the age of 5 years, fine motor coordination of children increased. Hands, arms and body, all moving together better under the command of the eye. Santrock [6]

## 2.2. Factors Affecting Fine Motor Development in Early Childhood

According Supriyadi [7] Fine motor development of a child does not always work out perfectly. There are several factors that influence the development of fine motor skills of children, both internal factors and external factors. Here are three such factors: Genetic factors, health factors in the prenatal period, Factor difficulties in childbirth, health and nutrition, stimulation, protection, Premature, disorders, and Parenting.

### 2.3 Ability Fine Motor Children

Fine motor development of children aged 4-5 years are different for each child. Motor development is the development control bodily movement through the nerve center, nerve, and muscle are organized. According to the book Caughlin Sumantri [5] suggests a number of indicators of the development of skills / fine motor skills of early childhood based on chronological age of 4-5 years, namely: (1) use finger movements in the game's fingers (2) to draw something means for the child and recognizable images of others (3) write the name of the front (4) to hold a pencil correctly between the thumb and two fingers.

### 2.4 Brain Gym

According to experts, Brain Gym, Paul E Dennison, Ph.D. [1], Brain Gym activities made to stimulate (lateral dimension), ease (focusing dimension), or relaxes (dimensional concentration) of the children involved in the specific learning situation. Brain Gym activities aim to integrate each part of the brain to open up parts of the brain that were previously closed or obstructed. Can imagine what would happen if each hemisphere of the brain develops their own, of course, there will be no harmony. Misalignment of the brain will also cause children to experience a variety of obstacles, especially in the learning process at school later. According to BGI [8] Brain Gym is an internationally promoted and implemented a program with the potential to affect the learning of children across the world. Brain Gym is a method comprising various basic movements to stimulate and balance all parts of the brain that includes left brain-right, up-down and front-rear. These movements have been grouped according to the areas of the brain. Brain Gym is best used at the beginning of the learning process especially when accompanied with songs or music that is cheerful and happy. Brain Gym movements performed with intensity, fast and attractive so as to improve the spirit of a child after a series of brain exercises. Effectiveness of Brain Gym in Improving Concentration Study on Children and the ability of the brain to perform the functions of planning, response and make a decision. Brain Gym can also improve learning without age restrictions Ayinosa [9].

Recent studies related to Brain-Based Teaching have confirmed that this approach has been Able to stimulate students' conceptual understanding, improve Attainment, and Decrease the gender gap that exists in Physics Akyurek & Afacan, [10]; Saleh & Subramaniam, [11]. Research has also shown that the use of thinking tools and Brain Gym activities can stimulate students' thinking processes, improve focus and increase of Reviews their long-term memory Dennison & Dennison [12]; Long & Carlson, 2011 [13]; McNerney & Radvansky [14]. Since research related to the potential of Brain-Based Teaching with i-Think Maps and Brain Gym Approach (BBT-iTBA) towards students' conceptual understanding on Physics is limited, this study can be considered as significant. Hence, the purpose of this study was to assess the effects of BBT-iTBA as compared to the conventional teaching approach

(CTA) towards Physics conceptual understanding amongst matriculation students in the north of Peninsular Malaysia.

Brain-Based Teaching is an approach that centers on neuroscientific findings on how the brain learns and its potential in maximizing human learning capabilities Caine et al., [15]. It is an approach that emphasizes on the student learning process through habit, structure and the development of the brain. The assumption is that the learning process will happen naturally, if there are no restrictions imposed on the learner's brain. Educators have been encouraged to use a variety of strategies so as to help the construction of synaptic networks within the brain that can lead to better understanding and the retention of information, in a manner designed to be naturally consistent with the brain's way of functioning Jensen, [16]; Madsen [17]. BBTA focuses on learning through meaningful experiences, which is tailor-made to the students' needs, regardless of their age. It also respects the differences in students and appreciate each student's uniqueness [16]. The implementation of this approach could create a more interesting and meaningful learning experience, and help improve the overall academic achievement of the learners [16].

Many educators from various countries have been using it in teaching and learning activities and was able to feel the benefits. Most of them have been used throughout the movement of Brain Gym in the classroom every day, but most only use certain movements related to the activity he is doing, like reading during a lesson read or write, listen and solve a math problem and so on. Brain Gym principle itself in which children are expected to find a rhythm in accordance with dirinyai own learning. The invention is a manifestation of a long creative dream by integrating the mind and body, and then combine their work with art, dance and games [12]. With movements practice taught in Brain Gym brain programming will happen, of course a lot of useful things that can be obtained from doing the movement.

According to research conducted by [9], sport and exercise on Brain Gym can provide a positive influence on the increase in concentration, attention, vigilance. Effectiveness of Brain Gym in Improving Concentration Study on Children and the ability of the brain to perform the functions of planning, response and make a decision. Brain Gym can also improve learning without age restrictions [9].

In maximizing the concentration of researchers using the focusing dimension Brain Gym movements. The focus is the ability to cross the "midline of participation" that separates the front and back of the body, and also the rear (occipital) and the front of the brain (frontal lobe). If all connected with both the child's attention or concentration is increased in the study. However, if the connection is not connected properly then the child will experience a decrease in concentration. In a study noted that 78% of boys and 63% of women spend their breaks in physical activity Beighle, [18]. Brain Gym can be done to refresh the physical and minds of the students after undergoing a learning process that requires a high concentration in the brain that lead to fatigue.

### 2.5 Benefits of Brain Gym for Early Childhood

According to Dennison [1] as for the benefit of the movement - the movement of Brain Gym, namely (1) Cross Movement, improve coordination of the left and right, improve breathing and stamina, improve coordination and awareness of space, improve hearing and vision. (2) Sleep, release eye strain, neck, and shoulders at the time of focus, increasing the depth perception and improve concentration, balance and eye-hand coordination. (3) Double

Graffiti, left and right awareness, improve eyesight, body awareness, coordination, as well as specialized skills and eye hand and improve the ability to exercise and movement skills. (4) Owl, the ability to move his head to the left and to the right, power and balance muscles of the neck and nape, reduce customs squint and stare, relieve muscles of her neck, jaw and shoulder, also at the very moment berkonstrasi, balancing the muscles of the neck and nape, (5) Enable Hands, the duration of the attention will increase in paperwork, increased focus and konsterasi without excessive focus, breathing more smoothly and more relaxed attitude, better able to express ideas, increase energy on the hands and fingers. (6) Elephants, the ability of head movement to the right and to the left, neck remains relaxed when focusing, coordinating the upper and lower body. (7) Yawning energy, vocal resonance deeper, relaxed vision, creativity and increased expression and increased balance. (8) Switch the brain, optimizing the fine motor skills, improve posture, increase energy, improve blood flow to the brain, enhance cooperation between the two eyes. (9) Number 8 (Alfabeth Eight's) Enables both hemispheres of the brain, supporting the hand and eye coordination, can distinguish and memorize the symbols and letters.

### 3. METHOD

The approach used in this study is a qualitative approach, is an approach that does not use quantitative effort or statistical calculations but rather focuses on the study of interpretation. Research with qualitative approach (Qualitative Reaseach) is intended to describe and analyze the phenomena, events, social activities, attitudes beliefs, thoughts of people individually or in groups. Bogdan and Taylor in L.J.Moleong [19] defines the qualitative method as a research procedure that produces descriptive data in the form of words written or spoken of people and behaviors that can be observed. Furthermore, Moleong [19] explains as follows:

"The qualitative research is rooted in the natural background as a whole, to rely on humans as a research tool, utilizing qualitative methods, conduct inductive data analysis, direct target of the study in an effort to find the theory of basic, descriptive, more concerned with the process than the results, limiting the study to focus, has a set of criteria to check the validity of the data, the draft interim bersifat research, and the research results agreed upon by both parties between researchers and research subjects".

Based on the opinion of the authors chose appropriate research methods considered the case study. The case studies included in the research method qualitative approach, apart from ethnography and interpretative posedur Bogdan and Biklen, [20]. The case study is part of a qualitative also reinforced by the opinions Creswell [21] who argued that qualitative research is actually includes a number of research methods, including ethnography, grounded theory, case studies, phenomenology and narrative. Case study is a research strategy that researchers investigate carefully a program, event, activity, process, or group of individuals. Cases are limited by time and activity, and researchers collected detailed information using a variety of data collection procedures based on a predetermined time [21]

Bodgan dan Biklen [20] stated:

*"... a detailed examination of one setting, or one single subject, or one single despositry or document, or one particular event"*.

Ans Creswell [23] explained :

*"A case study is an exploration of a bounded system or a case (or multiple cases) over time through detailed, in-depth data*

*collection involving multiple sources of information rich in context"*.

Definition of case studies is a deepening or exploration of the system is limited, or a case (some cases) which occurred in a long time through depth data collection and detailed covering different sources of information is related to the context. Furthermore, Deddy Mulyana [24] explains that:

*Case study seeks to examine as much data on the subject under study. They often use a variety of methods of interviews (biographical), observation, analysis of documents, (results) survey, and any data to describe the case in detail.*

Robert K. Yin [25] further argued that:

*"The case study is a strategy that is more suitable when the principal question of a study with regard to how or why, when researchers have little opportunity to control the events that will be investigated, and where the focus of his research lies in the phenomenon of contemporary (present) in the context of life real"*

Maxfield in Nazir [26] also argues that the case study is a research on the status of research subjects that relate to a specific phase or typical of the whole personality. His research can be individuals, groups, institutions, and society so as to provide a detailed overview of the background, characteristics and characters typical of the cases then of distinctive properties above will be a matter of a general nature.

As for as a qualitative method, case studies has several advantages. Lincoln and Guba [27] argues that privilege case studies include the following: (1) The case studies are the primary means for research EMIC, which presents a view of the subject under study (2) The case study presents a comprehensive description similar to what readers experienced in daily life (3) a case study is an effective means to show the relationship between researcher and respondent (4) the case study allows the reader to find the internal consistency is not only a factual consistency of style and consistency, but also reliability (trustworthiness). (5) The case studies provide a "thick description" needed for assessments or transferability (6) The case study is open to an assessment of the context of contributing to the meaning of the phenomena in the context.

Qualitative research approach with case study method used in this study is intended to determine the condition of an objective and in-depth research focus. Therefore, the author of more use inter-personal approach in this study, which means during the process of research the author will be more in contact with people who are in the research area. Thus researchers can more freely seek information and obtain more detailed data about the various things needed for research purposes. As well as trying to get a view of the outside of the system of research subjects, or observers, to maintain the objectivity of the research results.

### 4. RESULT AND DISCUSSION

The results of this study indicate that the use of methods of Brain Gym can increase the capabilities of motoric subtle in early childhood, it can be seen from the movements of Brain Gym implemented in early childhood activities such as squeezing Playdough to the movement "to enable hands" that benefits the increase focus and concentration without the excessive focus, breathing smoother and more relaxed attitude. Then the implementation of the method of Brain Gym activities to the

movement "Owls" that provide benefits for muscle strength and balance of the neck and nape, reducing squint habits, relieve muscles of her neck, jaw and shoulder. Furthermore, on the implementation of the Brain Gym movements "Yawning Energizing" to benefit the vocal resonance deeper, relaxed vision, creativity and expression is increased. Brain Gym movements on the implementation of the "horizontal eight / sleeping eight" children are able to release eye strain, neck and shoulder at the time of focusing. Increases depth perception and improve concentration, balance and eye-hand coordination. On the implementation of elephant movement capability of head movement to the right and left can be more relaxed and focused. The latter method the Brain Gym movements through "double streaks" were able to improve vision, body awareness, coordination and specialized skills and eye hand and improve the ability to exercise and movement. Based on the results of research actions have been implemented from the start until the end of the initial action has been concluded that the method of Brain Gym is an effort that can improve fine motor skills of children.

The success of the development of fine motor skills of children can be seen has been able to train the muscles of the hands / fingers, able to coordinate muscles and eyes, able to write some letters, and was able to hold a pencil properly, is able to draw something meaningful to the child and can be the image can be recognized others, capable of moving the hands above the head of the four directions, able to perform hand movements squeeze the shoulder opposite as he squeezed it and head come to look towards the shoulder, is able to perform the movement opened his mouth like a yawn and then massage the muscles around the joints of the jaw, is able to write the number eight horizontally in air using a thumb, is capable of movement left hand raised while the head attached to the shoulder and then write the number sleeping eight in the air, able to make graffiti with both hands, capable of making the letter O in figures of number eight, is able to make a move to enable hands up while squeezing playdough, is able to move both hands crossed or counterclockwise and the child is able to massage the chest and abdomen simultaneously.

## 5. CONCLUSION

### 5.1 Conclusion

Based on the results of research actions have been implemented from the start until the end of the initial action has been concluded that Brain Gym method can extend the capabilities of fine motor skills in early childhood.

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squeezed it and head come to look towards the shoulder, is able to perform the movement opened his mouth like a yawn and then massage the muscles around the joints of the jaw, is able to write the numbers eight horizontally in air using a thumb, is capable of movement left hand raised while the head attached to the shoulder and then perform number eight horizontally in the air, able to make graffiti with both hands, capable of making the letter O in figures of eight, is able to make a move to enable hands up while squeezing playdough, is able to move both hands crossed or counterclockwise and the child is able to massage the chest and abdomen simultaneously.

This happens because teachers make learning exciting activities, make the child spirit, fun, not monotonous so the kids enjoy the activities by using Brain Gym. In addition, teachers also pay attention and guide the children who still lack fine motor skills in using the methods of Brain Gym. Namely the movement of sleeping 8 and elephant movements, written with music and additional movement while a voice so as to make children interested and fun. Based on these data, it can be concluded that the fine motor skills of children aged 4-5 using Brain Gym method increases and results process improvement methods of Brain Gym is very good..

### 5.2 Implication

This study was done considering that the study subjects were children aged 4-5 years old. Therefore, in carrying out the learning process should use the methods and activities according to age and ability they have. Using a different method for children to make children interested and did not make children tired and learning activities are interesting and fun, stimulate the ability of the child so that learning becomes more interesting and can stimulate the fine motor skills of children, and achievement anakpun increased according to expectations and get results good learning. Brain Gym method applied to be one of the methods as an alternative in providing a stimulus child to be meaningful and fun learning, improving learning experiences and interests of the child, as well as improving fine motor skills of children.

### 5.3 Suggestion

Based on the conclusions and implications of the results of research actions in the can, the researchers tried to put forward suggestions as follows:

For the teacher, should be able to add creativity on methods and media activities and media that are used, and teachers can continue to develop their potential in creating a fun learning environment for children, and try to not make the child feel monotonous so quickly bored, and use learning methods in accordance with the child's age and needs of children.

For further research, it can take the experience and knowledge to be able to apply the methods of Brain Gym in improving the fine motor skills of children in the coming year.

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