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## The Influence Of Montessori Games Educational Methods And Media In Improving The Fine Motorcy Of Cerebral Palsy Children For Pre-Hooting Skills

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### ABSTRACT

This research investigates the impact of Montessori game educational methods and media on improving the fine motor skills of Cerebral Palsy children, especially in the context of pre-buttoning skills. Fine motor skills have a crucial role in daily activities, delays in the development of these skills can hinder children's learning abilities. Cerebral Palsy as a condition of brain dysfunction can cause fine motor disorders in children. Using a qualitative approach with a case study of subject B, this research implemented intervention using the Montessori method to train children's fine motor skills over nine meetings. Initial assessment results indicated challenges in the subject's behavior and fine motor skills. However, after the intervention, significant positive changes were seen. Subjects can be arranged to sit, complete tasks, and successfully place objects into containers according to their shape. This program also improves children's patience and sitting ability. Even though it has not yet reached the buttoning stage, satisfactory progress can be seen.

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## 1. INTRODUCTION

In fulfilling daily activities, a person must involve physical activity to do many things. The physical activity carried out cannot be separated from the role of motor skills, be it gross motor skills or fine motor skills. As explained in the journal [Merisya Gabrina Tifali \(2014\)](#), fine motor skills refer to a child's ability to carry out activities using fine muscles, such as writing, squeezing, grasping, drawing, arranging blocks, and inserting marbles. In the development process, gross motor skills generally develop earlier than fine motor skills. This can be observed when children learn to walk using their leg muscles, then they can control their hands and fingers for activities such as drawing and cutting. Fine motor development requires quite a long time and intensive attention because it affects learning abilities. Delays in fine motor development are indicated if at the age when the child should be able to develop new skills, but does not show appropriate progress. Especially, if at school age around six years, children still have difficulty using writing tools properly and correctly. Children who experience delays in fine motor development often face difficulties in coordinating flexible movements of their hands and fingers. A concrete example is in children with spastic type Cerebral Palsy, where the stiffness experienced in the hands can hinder the development of fine motor skills.

Children who experience delays in fine motor development face difficulties in coordinating the movements of their hands and fingers flexibly, this occurs in children with Cerebral Palsy. Children who experience Cerebral Palsy are a condition of brain dysfunction that causes movement disorders in parts of the sufferer's body. Some cases can be caused by poliomyelitis which is known as spinal palsy, or movement disorders in organs that arise due to muscle damage. This view is in line with Bandi Delphie's explanation in the journal [Utami & Triyono \(2022\)](#), namely that Cerebral Palsy is a disorder that arises due to movement difficulties originating from brain dysfunction. There are also movement disorders or palsies which are not caused by brain dysfunction, but by poliomyelitis which is known as spinal palsy, or abnormalities in organs caused by muscle damage (muscular dystrophy). Due to brain dysfunction, individuals with cerebral palsy have disorders in various aspects such as language, speaking, writing, emotional aspects, learning, psychological disorders, motor skills, and others.

Based on the article entitled Modification of Montessori Games on Fine Motor Skills in Early Childhood Group A Kindergarten Al Ijtihad from [Intan and Balqis \(2023\)](#) the findings of this study show an increase in children's fine motor skills by 55% based on evaluations in cycle 1 and cycle II. For further research, it is recommended to expand the scope of research and sample size, as well as consider variations of games to develop various aspects of children's abilities. In the article Efforts to Improve Children's Fine Motor Skills Through Montessori Life Skills Activities for Group A Children at Silmi Islamic PAUD Samarinda from [Fajriani \(2019\)](#), a significant increase in children's fine motor skills can be seen through Montessori life skills activities at Silmi Islamic PAUD Samarinda. Initially, only 40% of children reached the good category at the end of cycle I. However, in cycle II, the number of children who reached the good category increased to 92%. With these improvements, children have greater opportunities to develop their fine motor skills through Montessori life skills activities.

The Journal of the Effectiveness of the Montessori Method in Increasing Fine Motor Development of Children Aged 5-6 Years explains that there are differences in the effectiveness of increasing children's fine motor development between the Montessori method and the control group in this study.

The conclusion of this research is that the Montessori method is effective in improving the fine motor skills of children aged 5-6 years (Mardhiah & Sartika (2021)). Meanwhile, from the journal *The Influence of the Montessori Method on the Fine Motor Ability of Students with Mental Disability at SLB A YKAB Surakarta* Setyasih (2023) The results of the research show that there is an effect after intervention in the form of applying the Montessori method to students with mental retardation who experience fine motor barriers, with a stability level reaching 100% and no overlapping data at each stage. From these findings, it can be concluded that the Montessori method has an influence on the fine motor skills of mentally retarded students at SLB A YKAB Surakarta. Next, in the journal *Implementation of Fine Motor Stimulation in Practical Life Training at Pioneer Montessori School Padang Kindergarten* from Ningsih (2019) Fine motor stimulation carried out through practical life training at Pioneer Montessori School Padang Kindergarten has gone well. Teachers carry out planning before the activity begins by utilizing various kinds of activities in practical life training, as well as using interesting media and methods. Apart from that, teachers also evaluate each fine motor activity carried out.

This article will discuss improving fine motor skills in Cerebral Palsy children for pre-buttoning skills, where initially the subject cannot button, so they need to train their fine motor skills to be able to button. In an effort to improve fine motor skills, this research uses Montessori educational game methods and media, where the Montessori method is an educational approach that emphasizes children as the center of learning, based on scientific observations from infancy to adulthood. This approach has been applied for more than a century in various regions of the world. In a Montessori classroom environment, children are given the freedom to explore and organize their own learning. As "guides" or teachers, their role is to provide activities that are appropriate to the child's age development and guide the learning process (Kartika (2019)). This research aims to explore and describe the positive influence of Montessori game educational media on improving pre-buttoning skills in Cerebral Palsy children. Through this approach, it is hoped that more effective methods can be found to help them overcome their fine motor skills, especially in the context of pre-buttoning skills which have a significant impact on daily life. This research not only focuses on theoretical aspects, but will also explore the practical impact of using Montessori game educational media in developing fine motor skills in Cerebral Palsy children, especially in the context of pre-buttoning skills. Through this research, it is hoped that concrete recommendations can be found and can be implemented to improve the quality of life of Cerebral Palsy children through the Montessori approach in developing their fine motor skills.

## 2. METHODS

This research applies qualitative methods and a case study approach. This case study uses qualitative descriptive data that discusses the research subject. The research subject involves the individual being studied, namely subject B and the subject's parents. The research was carried out at the Intervention Laboratory in Bandung. Data collection techniques involve observation of subject B and interviews with parents as data sources. Data analysis was carried out using deductive techniques, where the research procedure involved examining theory first before carrying out observations. The instruments used in this research were prepared by researchers based on theoretical studies, converted into questions with

descriptive assessments of the results of observations and interviews. The results of this research will be the basis for designing specific programs and interventions for the subject.

To determine the characteristics and type of program that suits the needs of Children with Special Needs, a process of identification and assessment of the child is required first.

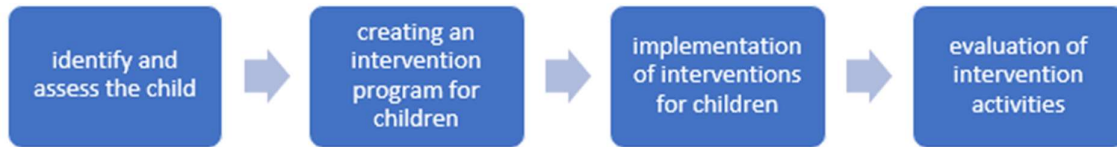


Figure 1. Research stages

### 3. RESULTS AND DISCUSSION

#### 3.1 Student Demographics

Cerebral Palsy is a condition in which problems occur, especially in the motor system, body posture and muscle movement. This condition can appear with or without mental retardation, and can be accompanied by other neurological symptoms caused by brain dysfunction before its development reaches perfection (Tjasmini (2016)). From this we can know that there are motor disorders in Cerebral Palsy children, whether in gross motor skills or fine motor skills. In the case studied in this article, the subject is a hemiplegic spastic cerebral palsy in the right hand and foot, the subject is named B and is 5 years old, B has mild cerebral palsy which allows researchers to carry out research and intervention on his fine motor skills.

#### 3.2 Program Development

In the journal Glori and Julita (2023) it is explained that fine motor skills refer to physical skills that involve small muscles and eye-hand coordination. This fine motor nerve ability can be improved through regular activities and stimulation. Examples include playing puzzles, using scissors, inserting objects into holes according to their shape, making lines, folding paper, and similar activities. Every child has differences in fine motor intelligence, including strength and accuracy, which is also influenced by congenital factors and the stimulation they receive. Therefore, to train and carry out fine motor activities, patience is needed, researchers need to know in advance what fine motor programs and supporting programs the subject needs. Researchers can find out which programs are suitable by identification and assessment.

The assessment in this study included gross motor, fine motor, social-emotional, GMFM, and GMFCS instruments. The entire instrument is implemented on the subject to measure the potential and needs of the subject and from the results of the assessment the child's profile will be obtained. The following is the child's profile from the results of the assessment carried out on the subject:

**Table 1.** Child profile as a result of the assessment

Ability	Obstacle	Need	Implications
Children can put objects into jars with large holes.	Children cannot put objects into jars with small holes.	Children need to practice fine motor skills and learn to control their emotions.	Behavioral training, fine motor training: putting objects into jars.
Child understands instructions.	Sometimes children do not want to follow the instructions given.	Children need to practice paying attention and following the instructions given.	Behavior training: hands folded on the table and sitting neatly in a chair.
The child is able to use his hands.	The child cannot function his right hand optimally.	Children need to practice fine motor skills in their right hand.	Fine motor training: by picking up items with the right hand.
Children are able to walk without parental help	The child still holds on when going up and down the stairs	Children need balance training	Balance training: can be done on tiptoes, walking on a catwalk
Children are able to move their mouths	The child is not yet able to speak clearly	Children need oral motor imitation practice	Identification practice using flash cards

From the results of the assessment in the form of the child's profile above, researchers can determine the right program for the subject. Children need a program that covers aspects of their independence, namely fine motor skills, as well as their behavior, so that the following program is obtained:

**Table 2.** Children's learning program

Component/ Aspect	Objective	Indicator	Learning Steps	Method	Media
Independence	Children can button up	- Fine motor skills - eye and hand coordination, - concentration.	1. The assessor prepares the learning media that will be used that day as well as where the students will sit. 2. In the first step of learning, children will be welcomed and asked to go to their bench, sit	Demonstration and practice	- insert objects into holes - A jar containing pom poms with a round hole - a jar containing buttons with a long jar hole

Component/ Aspect	Objective	Indicator	Learning Steps	Method	Media
			down and fold their hands. 3. Then the child is asked to read a prayer first. 4. Then children are invited to choose media and play media. 5. After finishing using the media, children instructed to tidy up first. 6. Before going home, I was asked to read a prayer first. 7. The children say goodbye and go home.		resembling a key - replica shirt with buttons
Behavior	Children can follow instructions.	Concentration, understanding instructions	The behavior steps are the same as in the buttoning program, inserted into the learning activities.	Demonstration and practice	-

Researchers applied this program during 9 meetings which were held every week on Monday. Until finally this intervention produced results, although the results had not yet reached the buttoning stage due to limited time, the results of this research were as follows:

**Table 3.** Conditions before and after program implementation

Conditions before the program is carried out	Conditions after the program is carried out
1. The child cannot yet be arranged to sit in his place. 2. The child has not been able to complete the tasks that have been started. 3. Children can't put pom poms in the jar yet. 4. The child cannot insert the stick yet into the jar sticks. 5. The child cannot yet put buttons in the button jar. 6. Children are impatient and unable to play with cylinder towers.	1. Children can be arranged to sit in place. 2. Children can complete tasks that have been started. 3. Children can put pom poms in the jar. 4. Children can put sticks into the jar sticks. 5. Children can put buttons in the button jar. 6. Children can be patient and can play with cylinder towers. 7. Children can play pink tower patiently. 8. Children can insert geometry into the holes. 9. Children can sit for more than 10 minutes.

<b>Conditions before the program is carried out</b>	<b>Conditions after the program is carried out</b>
7. Children cannot yet play the pink tower patiently.	10. Children become more patient in putting objects into holes.
8. Children cannot yet enter geometry into holes.	
9. The child cannot sit for longer than 10 minutes.	
10. Children can't wait to put objects into holes	

Before the intervention program was implemented, the child's condition showed several challenges in terms of behavior and motor skills. Children cannot be arranged to sit in their place, have difficulty completing the tasks they have started, and are not yet able to carry out activities such as putting pom poms, sticks and buttons into their respective containers. In addition, children show an inability to be patient when playing with cylindrical towers or pink towers. The ability to sit for long periods is also still limited, and patience in inserting objects into holes also needs to be improved. After going through the intervention program, positive changes occurred in the child's condition. Now, the child can be arranged to sit in his place and be able to complete the tasks he has started. His fine motor skills have also improved, as can be seen from his success in putting pom poms, sticks and buttons into their respective containers. Children have also developed the ability to be patient when playing with the cylinder tower and pink tower. In addition, his sitting ability has improved, and the child is able to sit for more than 10 minutes with more patience when inserting objects into the hole. The intervention program has had a significant positive impact on children's development in aspects of behavior and motor skills. Although this research has not been completely successful, there has been progress in the subject with the intervention methods carried out in the research.

#### **4. CONCLUSION**

This research uses qualitative methods and a case study approach. The research subject was a child with hemiplegic spastic cerebral palsy of the right hand and foot, aged 5 years. The research was carried out at the Intervention Laboratory in Bandung city and involved observations of subject B and interviews with parents as data sources. Data analysis was carried out using deductive techniques, with instruments prepared by researchers based on theoretical studies. The results of the assessment of the subject show that children need a program that covers aspects of their independence, especially fine motor skills and behavior. The intervention program is carried out for 9 meetings every week, with the aim of making children able to button and follow instructions better. Even though the results have not yet reached the buttoning stage due to time constraints, there have been positive changes in the children. After the intervention, the child was able to be arranged to sit in his place, complete the tasks he started, and improve his fine motor skills. Overall, this intervention program has a significant positive impact on children's development in aspects of behavior and motor skills. Even though it has not been completely successful, there has been significant progress in the subject with the intervention methods used in this research.



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## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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