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Efforts To Improve Children's Fine Motor Abilities Through The 4d Straw Building Game: Classroom Action Research at RA Atta'awun

Herlina Nurhayati [1], RA Atta'awun, Indonesia
Herminatin[2], MTs Alhimmah Pacitan, Indonesia

ABSTRACT

This study aims to improve the fine motor skills of early childhood through the use of the 4D Straw Building game media. The subjects in this study were group A children aged 4-5 years at RA. ATTA'AWUN, Cileunyi District, Bandung Regency, totaling 13 children. The problem underlying this study is the low fine motor skills of children, which can be seen from their difficulties in activities such as holding crayons, using scissors, and other activities that require strength and coordination of the fingers. This study uses the Classroom Action Research (CAR) method of the Kemmis and McTaggart model which is carried out in two cycles. The data collection techniques used are observation and documentation. In the first cycle, the results showed that children's fine motor skills were still low with a development percentage of only 30.8%. After reflection and improvement in the second cycle, there was a significant increase of up to 84.6%. The 4D Straw Building game has proven to be effective in stimulating fine motor development because it involves activities such as holding, pressing, connecting, and forming straws into various creative shapes. In addition, this media also supports the development of children's imagination and creativity in a fun learning atmosphere. The results of this study provide practical benefits for teachers and PAUD institutions in developing innovative and fun learning methods. It can be concluded that the use of the 4D Straw Building game is an effective alternative media to improve fine motor skills in early childhood, and can be applied in daily learning activities in PAUD classes on an ongoing basis.

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Corresponding Author:

Herlina Nurhayati
RA Atta'awun, Indonesia
herlina28.moet@gmail.com

Introduction

Early Childhood Education is a development aimed at children from birth to 6 years of age which is carried out through the provision of educational stimulation to help physical and spiritual growth and development so that children are ready to enter further education. Children aged 0-6 years generally have fine motor skills that are not

well developed. So it is necessary to anticipate to reduce the worry of children experiencing difficulties in fine motor skills. One way that can be done is to use learning media or games that are appropriate and interesting for children.

Playing develops motor skills. Piaget argued that children are born with reflex abilities, then they learn to combine two or more reflex movements, and in the end they are able to control their movements. Through play, children learn to control their movements to be coordinated. In addition, playing allows children to move freely, so that children are able to develop their motor skills

Observation results at RA.ATTA'AWUN show that children in group A have problems related to the lack of development of fine motor aspects, this is because there is no learning program to improve fine motor skills in early childhood specifically developed at the RA, the problem in group A is that many children cannot hold crayons, scissors properly and their hand muscles are still not strong enough, their fingers are not flexible so that when the teacher gives assignments to color or crumple paper or slime, their wrist movements are still weak and they get bored quickly because they are tired so that sometimes the work cannot be completed completely. Not only that, almost most of the family backgrounds of children in class A RA.ATTA'AWUN do not really understand what aspects of development must be achieved in early childhood, they only care about children being able to recognize letters, write and count well.

Activities that can stimulate the development of fine motor skills in children are by moving their fingers continuously and in a structured manner. One of these activities can be done by playing 4D Straw Building. Because by playing 4D, the child's fingers will automatically play picking up, installing, opening and moving the fingers which indirectly the child can train his fine motor skills. Therefore, after seeing the facts above that fine motor skills in children really need to be developed optimally for future skills, the author made a proposal entitled "Efforts to improve children's fine motor skills through the 4D Straw Building Game"

Methods

This study uses the Classroom Action Research (CAR) approach developed by Kemmis and McTaggart, because the nature of the problems raised is directly related to classroom learning activities and aims to improve the quality of learning directly and sustainably. Classroom action research is carried out collaboratively, where researchers work together with class teachers and principals as partners to design, implement, observe, and reflect on actions taken during the research process. By using a spiral model consisting of the planning, action implementation, observation, and reflection stages, this study was conducted in two cycles so that the results of the improvements can be seen clearly and significantly.

The subjects in this study were children in group A RA. Atta'awun, Cileunyi District, Bandung Regency, totaling 13 children with an age range of 4-5 years. These children were selected using a purposive sampling technique, namely the deliberate selection of samples with the consideration that group A is a group that experiences problems in the aspect of fine motor development. This technique was chosen because it is in

accordance with the characteristics of CAR which aims to improve the quality of learning in certain groups that have been identified as experiencing certain problems.

The variables studied in this study are divided into two, namely process variables and outcome variables. Process variables relate to how learning activities are carried out, such as children's involvement in playing, children's ability to follow instructions, and children's responses to the 4D Straw Building game media. While the outcome variable is children's fine motor skills observed through indicators such as finger flexibility, hand muscle strength, and eye and hand coordination when doing activities such as connecting, pressing, and arranging straw buildings.

The data collection technique in this study used two main methods, namely observation and documentation. Observations were carried out directly by researchers assisted by class teachers and principals as collaborators. Observations were carried out using observation sheets that recorded children's fine motor development according to the established indicators. Documentation was used to record events during the action process, including photos of children's activities, children's work, and field notes that supported the observation data.

The instrument used in this study was a fine motor development observation sheet, which consisted of four categories: Not Yet Developing (BB), Starting to Develop (MB), Developing According to Expectations (BSH), and Developing Very Well (BSB). This category refers to the early childhood development assessment standards according to the PAUD curriculum. The observation sheet was used in each action cycle to evaluate the development achieved by children during the learning process using the 4D Straw Building game media.

The first cycle of the study focused on the initial application of the 4D Straw Building game in learning. At this stage, children were introduced to the game media and given directions on how to connect, press, and form buildings from straws. Observations were made to see to what extent children could respond to the activity. The results of the first cycle showed that there were still many children who had not developed or were just starting to develop in terms of fine motor skills, with a percentage of only 30.8%. Reflection was carried out to identify weaknesses in the approach used, including the lack of variation in shape and less than optimal teacher assistance.

Based on the reflection from the first cycle, re-planning was carried out in the second cycle. In this cycle, the researcher added variations in the shape of the building that children could make, provided more time for exploration, and increased the intensity of mentoring and motivation from teachers to children. In addition, activities were also made more fun with a thematic approach that was in accordance with the curriculum, so that children were more interested and actively involved. The results of the second cycle showed a significant increase in children's fine motor skills, with a

success rate of 84.6%, where almost all children had reached the category of developing according to expectations and developing very well.

Data analysis was carried out using a quantitative descriptive approach. Data obtained from the results of observations were calculated in the form of a percentage of children's development in each category. Furthermore, a comparison was made between the results of the first and second cycles to see the improvements that occurred. The analysis technique used refers to the Miles and Huberman model, namely through the process of data reduction, data presentation, and drawing conclusions. The reduced data is arranged in a child development table and described in the form of a narrative that explains the changes that occur in each cycle.

The validity of the data in this study was maintained by triangulation, namely comparing data from observation results, documentation records, and reflection results carried out with class teachers. This triangulation is important to ensure that the data obtained truly reflects the conditions that occur in the field. In addition, researchers also held discussions with colleagues and collaborators to reflect on the learning process and the results that have been achieved in each cycle, in order to improve actions in the next cycle.

Overall, this research methodology is designed to ensure that learning activities using the 4D Straw Building game media can be implemented effectively and systematically in order to improve children's fine motor skills. With a reflective and collaborative PTK approach, this research is not only a means of collecting data, but also part of the teacher's learning process in improving the quality of their teaching practices. Therefore, the results of this study are not only useful for improving children's abilities, but can also be used as a reference for teachers and other PAUD institutions in developing innovative learning strategies that are in accordance with the developmental needs of early childhood.

Result

This research is motivated by the low fine motor skills of early childhood children in group A RA. At Ta'awun, Cileunyi District. Based on the results of initial observations, many children have difficulty in doing activities that require eye-hand coordination and finger flexibility, such as holding crayons, scissors, or squeezing slime. This condition indicates weak hand muscles in children and a lack of appropriate stimulus to develop fine motor skills. This problem is exacerbated by the lack of parental knowledge about the importance of aspects of child development, especially in terms of fine motor skills which greatly determine children's readiness to face the next level of education.

As a solution to this problem, researchers use educational game media in the form of 4D Straw Buildings. This game is in the form of a building construction from straws that can be arranged into various shapes such as houses, balls, cylinders, and others. This arranging activity involves holding, pressing, connecting, and pulling straws which are very effective in stimulating children's fine muscles. By playing while learning, children not only train finger flexibility and eye-hand coordination, but also develop their

imagination and creativity. This game was chosen because it is safe, fun, and in accordance with the characteristics of early childhood play.

The study was conducted using the Classroom Action Research (CAR) approach of the Kemmis and McTaggart model, which consists of two action cycles. Each cycle includes the planning stage, action implementation, observation, and reflection. The subjects of the study were 13 children in group A aged 4–5 years at RA. At Ta'awun. The data collection techniques used were observation and documentation, supported by field notes and assessment sheets for children's fine motor skills. This study was collaborative, where class teachers and principals were involved as observers and reflection partners in each cycle.

In the first cycle, the observation results showed that only 4 out of 13 children (30.8%) were in the category of "developing as expected" or "developing very well". The majority of children were still in the "not yet developed" and "starting to develop" stages. These results indicate that children's fine motor skills are still low even though the 4D Straw Building game has been implemented. Reflection from this cycle shows that the lack of variation in shapes and teacher assistance techniques that are not yet optimal are factors causing the lack of improvement in children's skills. Therefore, the researcher made improvements in the second cycle.

Improvements in the second cycle were made by enriching the variety of building shapes that children could make and improving the quality of teacher assistance during play activities. Children were given more time and challenges that required fine motor involvement, such as making complex shapes from straws and naming colors. The results of observations in the second cycle showed a significant increase, namely 11 out of 13 children (84.6%) had reached the category of developing as expected and developing very well. This shows that the 4D Straw Building game is very effective in improving children's fine motor skills.

This finding is in line with previous research stating that play-based activities such as folding, forming with media, or making collages have been proven to be able to improve fine motor skills in early childhood. In this study, a fun, structured, and child-interest-oriented approach has been proven to be a positive stimulus for their motor development. The results of both cycles showed a significant increase in ability, which is strong evidence that the 4D Straw Building game is an effective learning medium for use in PAUD classes.

This study also provides theoretical and practical benefits. Theoretically, the results of the study strengthen theories of child development related to the importance of fine motor stimulation through fun play activities. Practically, the results of this study can be a reference for PAUD teachers in designing learning activities that support children's fine motor development. Teachers can also adjust the form of the game according to the curriculum theme to be more contextual and relevant to children's daily lives. In addition, this study can also help PAUD institutions to improve the quality of learning and innovation in the use of educational media.

Thus, it can be concluded that the 4D Straw Building game media has been proven effective in improving fine motor skills in early childhood, especially in group A RA. ATTA'AWUN. Through this activity, children can practice finger skills, strengthen eye-hand coordination, and improve imagination and creativity. This study recommends the use of similar games in other PAUD schools as an alternative to fun and meaningful

learning. The researcher also suggests that educators continue to explore new learning media that are in accordance with the characteristics of early childhood to support their optimal growth and development.

Discussion

The results of this study indicate that the use of 4D Straw Building game media can significantly improve the fine motor skills of early childhood. This finding is consistent with the results of various previous studies that emphasize the importance of using concrete media and play activities in stimulating fine motor development in children. The increase seen from 30.8% in the first cycle to 84.6% in the second cycle shows the effectiveness of this approach when implemented with a more focused, thematic, and fun learning strategy for children.

This study is in line with the results of Rahmawati's (2020) study which examined the improvement of fine motor skills through block puzzle playing activities at Al-Hidayah Kindergarten Semarang. In her study, Rahmawati found that block stacking activities provide opportunities for children to use their fingers and hands actively and in a coordinated manner, thus gradually improving their fine motor skills. The final results showed an increase from 35% to 80% in two cycles. This shows that both block puzzles and the 4D Straw Building game offer manipulative elements that can stimulate children's fingers.

In addition, research by Indah Puspita (2021) at Pertiwi 1 Kindergarten Bandar Lampung used the collage method with various natural materials to train fine motor skills. Puspita noted an increase in children's ability to cut, stick, and arrange collage materials from 40% to 85% after two cycles of action. The collage method has similarities to the 4D game in terms of the use of small muscles and hand-eye coordination. The similarities that emerged from this study are the importance of children's direct experience through fun and diverse media in learning. Meanwhile, Hasanah (2022) conducted research on the use of threading games (meronce) in group B children at RA Nurul Huda. The results of the study showed a significant increase from 38% to 87% in children's fine motor skills. The meronce game involves finger skills and high concentration, just like the 4D Straw Building game. Both require children to focus and use hand and eye coordination simultaneously. In this case, Hasanah's research and this study show that active play methods based on manipulative materials can directly improve fine motor skills.

In 2023, Yuliana Sari from the Indonesian University of Education studied the use of interactive digital media to improve fine motor skills in early childhood through touch screens and educational games. Although there was an increase from 28% to 70%, the results were not as large as concrete play methods such as 4D straw buildings. This indicates that digital media still has limitations in the direct sensorimotor aspect which is very much needed by early childhood to train physical hand coordination. Thus, it can be concluded that real manipulative games are still superior in developing fine motor aspects compared to technology-based approaches.

From the four studies, it appears that there is a strong tendency to support a concrete play-based learning approach as an effective strategy to improve children's fine motor skills. This study strengthens the evidence that direct involvement of children through holding, arranging, pressing, and arranging activities such as in the 4D Straw

Building game is very effective in stimulating small hand muscles and increasing children's concentration and imagination.

The striking difference between the results of the first and second cycles in this study is also in line with the patterns found in previous studies. This indicates that the initial approach may not be optimal due to the lack of adjustment to the child's interests and abilities, but after reflection and improvement of actions, the results can improve significantly. This underlines the importance of a reflective and evaluative approach in the early childhood learning process.

In general, this study provides a new contribution in the use of educational game media that is easily obtained, inexpensive, and flexible to use in various learning themes. Different from some previous studies that use one-way learning media or natural materials, the 4D Straw Building game offers great potential in developing creativity and motor skills simultaneously through free and interactive form construction.

Therefore, based on a comparison with previous studies, it can be concluded that the results of this study strengthen and broaden insights into the effectiveness of concrete game media in early childhood learning, as well as being an important reference for early childhood teachers to continue exploring innovative, fun, and developmentally appropriate learning approaches.

Conclusion

Based on the results of the study conducted in two cycles of action, it can be concluded that the use of the 4D Straw Building game can significantly improve the fine motor skills of group A children at RA. ATTA'AWUN, Cileunyi District, Bandung Regency. This game involves manipulative activities such as holding, pressing, connecting, and forming which are very suitable for stimulating the fine muscles of the hands and eye-hand coordination of early childhood. This can be seen from the increase in children's abilities which initially only reached 30.8% in the category of "developing according to expectations and very good" in the first cycle, to 84.6% in the second cycle. With a fun play approach, children are not only physically involved but also emotionally and cognitively in learning activities.

The 4D Straw Building game has also been proven to provide the right stimulus for the development of children's creativity and imagination. Through the activity of building and arranging shapes according to children's thinking power, they learn to recognize colors, shapes, and directions, and practice following instructions with more focus. Children become more active and motivated because this activity is carried out in a playful atmosphere, not in the form of rigid or monotonous learning activities. Teachers who act as facilitators also have an important role in directing, guiding, and providing emotional support so that children remain enthusiastic about completing the building shapes they make.

In addition to the direct benefits to fine motor skills, the use of this game also has a positive impact on children's social-emotional aspects. Children show improvements in terms of cooperation, taking turns using tools, and sharing ideas in building shapes. This proves that educational games such as 4D Straw Buildings not only stimulate individual skills, but also shape children's character and positive attitudes towards group learning

activities. Therefore, this game can be a comprehensive learning medium because it is able to develop many aspects of child development simultaneously.

The success of the implementation of this game is also supported by the reflective approach carried out through the Classroom Action Research model. Each stage of observation and reflection helps teachers to evaluate and improve learning methods continuously. This is proof that collaboration between teachers, principals, and researchers is very important to create an effective learning atmosphere that is in accordance with children's needs. The iterative process in the action cycle provides space for teachers to try new approaches, develop better strategies, and provide a more enjoyable learning experience for children.

Overall, this study concludes that the 4D Straw Building game is an alternative learning media that is highly recommended in an effort to improve fine motor skills in early childhood. This media is not only easy to use and safe, but can also be adapted to various learning themes in the PAUD curriculum. Teachers and early childhood education institutions are advised to be more active in exploring and developing similar games in daily learning activities. Thus, learning is not only a means of knowledge, but also a place for children to develop fully according to their growth and development stages.

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