

# Development of the Pot Artistry Game to Stimulate Fine Motor Skills in Children Aged 5-6 Years

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## Abstract

This research aims to develop an educational toy to stimulate fine motor skills in children aged 5-6 years, responding to the lack of such tools in several educational institutions. Referring to the Regulation of the Minister of Education & Culture Number 137 of 2014 on National Standards for Early Childhood Education, specifically the Fine Motor Indicators for ages 5-6 years, researchers designed the "Pot Artistry" game. The research methodology adopts a synthesis by Pramono et al. (2019), combining approaches from several previous researchers. The development process comprises six stages, from needs analysis to small group testing. Validation was conducted by two game experts and two fine motor skills experts, with trials involving 20 kindergarten B children at TK Baitul Makmur, Dau, Malang Regency. The game expert validation results reached 87.5% (highly valid), while the material expert validation achieved 97.2% (highly valid). Observations on children showed a score of 88% for aspects of interest and motivation, and 84.37% for demonstrated fine motor skills. In conclusion, Pot Artistry proves to be valid as a tool for stimulating fine motor skills in children aged 5-6 years, based on comprehensive evaluations from experts and direct observations of children.

**Keywords:** Early Childhood Education; Fine Motor Skills; Games

## 1. Introduction

The "Golden Age" of childhood, lasting until age 6, is a critical phase in human development characterized by rapid growth and learning. During this period, children exhibit an extraordinary ability to absorb and process experiences, becoming highly responsive to environmental stimuli. Oktavia Lestari & Karim Halim (2022) emphasize that children at this stage are particularly drawn to play and enjoyable activities. Play serves not only as entertainment but also as an effective learning tool. Smith (2010) defines play as participation in enjoyable activities for entertainment and pleasure, highlighting the importance of enjoyment and freedom in the learning process.

In the context of child development, motor skills, particularly fine motor skills, play a crucial role. Hadiyanti et al. (2021) define fine motor skills as movements involving small muscles, aimed at achieving effective hand-eye coordination. These skills are essential for tasks such as writing, drawing, and manipulating objects with precision. Rohmah & Gading (2021) stress that fine motor skills are necessary for various activities involving environmental manipulation, supporting children's independence in daily tasks and preparing them for more complex skills in the future.

However, it's important to note that motor development isn't limited to fine motor skills. Asmuddin et al. (2022) explain that gross motor skills can also be developed through play. Mustafa & Sugiharto (2020) point out that in early childhood, progress in gross motor skills (e.g., running, jumping) is often more prominent than in fine motor skills.

The Regulation of the Minister of Education & Culture Number 137 of 2014 sets standards for early childhood education in Indonesia, including seven achievement standards related to fine motor skills for children aged 5-6 years. These standards include drawing, shape imitation, media exploration, proper use of tools, cutting, pasting, and detailed drawing.

Despite these standards, observations and interviews conducted at TK Baitul Makmur revealed several obstacles in developing children's fine motor skills. Learning activities tend to be monotonous, focusing on only one or two levels of fine motor achievement. The choice of games available to develop these skills is limited and lacks variety, indicating a gap between set standards and practical implementation.

Given the importance of the "Golden Age" and the role of play in child development, as well as the observed gaps in current practices, there is a need for innovation in designing learning activities that can optimize children's fine motor development. This research aims to develop an innovative game called "Pot Artistry" for children aged 5-6 years, designed to cover several fine motor achievement levels simultaneously.

The specific objectives of this research are to produce the "Pot Artistry" game that is valid according to material experts, game experts, and users. The game is intended to address the limitations of existing educational games, provide variety and challenge needed for optimal fine motor development, and allow for adaptation to individual children's needs.

The development of "Pot Artistry" aligns with early childhood learning principles that emphasize learning through play. By combining enjoyment and fine motor skill development, the game is expected to be an effective tool in supporting children's holistic development. The research also aims to provide insights into designing games that meet multiple child development achievement standards simultaneously, potentially serving as a model for future educational game development.

This study considers the complexity of early childhood development and the importance of balance between various developmental aspects. While focusing on fine motor skills, it also explores how the "Pot Artistry" game can support other developmental areas such as cognitive, socio-emotional, and creativity.

The research is expected to contribute significantly to the field of early childhood education. It aims to enrich learning methods and stimulate fine motor development, not only at TK Baitul Makmur but potentially in other early childhood education institutions as well. The findings could inform practitioners in early childhood education and serve as a foundation for further research in this area.

By addressing the challenges observed in current educational practices and proposing an innovative solution through the "Pot Artistry" game, this research seeks to bridge the gap between established developmental standards and practical implementation in early childhood education settings. The potential impact extends beyond the immediate context of the study, offering valuable insights for educators, game developers, and researchers invested in optimizing early childhood development through play-based learning approaches.

## **2. Method**

This study adopts the Research and Development (R&D) approach as its primary method. R&D is a research method used to analyze, design, produce, and validate products. In this context, the R&D approach allows researchers to develop the Pot Artistry game and evaluate it to understand children's needs, product performance, and its benefits for children and teachers in fine motor skills learning.

The development model used in this study refers to the research conducted by Pramono et al. (2019). This model is a synthesis of several previous studies, including Ploom (2007), Kemp (2004), Hanafin and Pack (1998), and Borg and Gall (1983). The synthesis of these studies results in a model structured into six main steps: needs analysis, identification and design of the desired final outcomes, prototype development, expert testing and evaluation, small group testing, and broader scale testing. However, this study limits the stages to small group testing to ensure the product's focus and feasibility.

This study involves 20 children from groups B1 and B2 at TK Baitul Makmur, Malang, as test subjects. Data collection is carried out through observation and unstructured interviews to analyze needs and evaluate the implementation of the Pot Artistry game. The primary data collection instrument is a validity instrument used to measure the product's validity by expert lecturers. The assessment uses a 4-point Likert scale, covering various aspects of the Pot Artistry game such as material suitability, game attractiveness, and its ability to enhance children's fine motor skills.

This approach is chosen because it allows for systematic and evidence-based product development, considering the needs of users (children and teachers) and feedback from experts. Through these stages, researchers can develop the Pot Artistry game that is not only innovative but also effective in stimulating the fine motor development of children aged 5-6 years. Thus, this study aims not only to produce a product but also to ensure that the product is valid, effective, and aligned with the fine motor learning needs of children aged 5-6 years.

## **3. Results and Discussion**

### **3.1. Result**

Based on the research conducted, there are several important findings related to the development of children's fine motor skills through Pot Artistry games. This research involves the analysis, design, development, validation, and implementation of games designed for children aged 5-6 years.

#### **3.1.1. Analysis**

In this section, the researcher conducts an analysis of existing studies on the development of fine motor skills in children. Through observations and interviews with teachers at several kindergartens, the researcher identifies relevant indicators to assess fine

motor development, such as the ability to hold writing tools and draw. These findings form the basis for designing effective games

### 3.1.2. Design

The game Pot Artistry is designed with components that support the development of fine motor skills, such as observation sheets and assessment rubrics that align with Permendikbud No. 137 of 2014. The indicators assessed include the precision in decorating the pot and the child's creativity in using colors.

### 3.1.3. Expert Validation

The results and discussion of this research focus on the validation of the Pot Artistry game, which is designed to stimulate fine motor skills in children aged 5-6 years. Validation was carried out by two groups of experts: material experts and game experts, who provided assessments based on specific criteria.

#### 3.1.3.1. Material Expert Validation Results

The two material experts involved in this research are Ibu Evania Yafie, S.Pd, M.Pd., Ph.D., and Ibu Rosyi Damayani Twinsari Maningtyas, M.Pd. The validation results from both experts indicate that the Pot Artistry game is highly valid for use.

**Table 1. Material Expert Validation Results**

Material Expert	Validation Score		%	Category
	Total Validation Score	Total Maximum Score		
Evania Yafie, S.Pd, M.Pd., Ph.D	34	36	94.4%	Very Valid
Rosyi Damayani Twinsari Maningtyas, M.Pd	36	36	100%	Very Valid
<b>Final Result</b>	70	72	97.2%	Very Valid

Based on the average results from both experts, a score percentage of 97.2% was obtained, indicating that this product is highly valid and can be used without revision. This validation includes an assessment of the material's alignment with learning objectives, its relevance to child development, and the ease of understanding the material.

#### 3.1.3.2. Game Expert Validation Results

Two game experts who participated are Nur Anisa, M.Pd, and Dr. Yudithia Dian Putra, M.Pd., M.M. The validation results from the game experts also show highly valid results.

**Table 2. Game Expert Validation Results**

Game Expert	Validation Score		%	Category
	Total Validation Score	Total Maximum Score		
Nur Anisa, M.Pd	25	28	89,2%	Very Valid
Dr. Yudithia Dian Putra, M.Pd., M.M	24	28	85,7%	Very Valid
<b>Final Result</b>	49	56	87.5%	Very Valid

The average score percentage from both game experts shows a score of 87.5%, which also falls into the highly valid category and can be used without revision. This assessment focuses on the game's ability to provide learning opportunities, learning motivation, and relevance to other developmental aspects.

**3.1.4. Implementation**

The trial of the game was conducted on 20 children at TK Baitul Makmur. The observations showed that the children were very enthusiastic and engaged in the activity. The score for the children's interest and motivation reached 88%, while the fine motor skills demonstrated reached 84.37%.



**Figure 1** Children are instructed to line up and given an initial explanation about the game that will be conducted.



**Figure 2** Children are divided into several groups and given a repeated explanation in each group.



**Figure 6** Children paint pots using watercolor and brushes. After that, the pots will be dried and the activity will continue the next day.



**Figure 7** Children learn to paint by following the patterns and examples that have been provided.



**Figure 5** Children cut out pictures from paper that will later be attached to the pots.



**Figure 4** Children glue beads onto the pots.



**Figure 3** One of the children shows the decorated pot.

### 3.1.5. Evaluation

Evaluation in the development of Pot Artistry for children aged 5-6 years is conducted at the end of each stage. In the analysis stage, conclusions are drawn from the needs analysis, child characteristics, and curriculum. Issues that arise lead to product revisions. In the development stage, the product is consulted with supervising lecturers and improved according to validator suggestions. In the implementation stage, the product is refined based on trials with children.

## **3.2. Result**

### **3.2.1. Product Validity According to Material Experts**

Based on research regarding the validation of the Pot Artistry game for fine motor stimulation of children aged 5-6 years, evaluations were conducted by two material experts, namely Evania Yafie, S.Pd, M.Pd., Ph.D., and Rosyi Damayani Twinsari Maningtyas, M.Pd. Evania Yafie gave excellent scores on the accuracy of the material with learning objectives, appropriateness to child development, completeness and depth of material, and suitability to children's conditions, each receiving a score of 4. However, there were two aspects that received a score of 3, namely the content of the material presented sequentially and systematically, and the ease of material understanding by children, resulting in a total score of 94.4%. Rosyi Damayani gave a total score of 100% with all assessment categories receiving a score of 4. Both experts provided input for creating clearer and more detailed game guidelines to improve the quality of learning.

### **3.2.2. Product Validity According to Game Experts**

Expert validation of the Pot Artistry game was conducted by Nur Anisa, M.Pd., and Dr. Yudithia Dian Putra, M.Pd., M.M. Nur Anisa gave maximum scores (4) on aspects of the game's ability to provide learning opportunities, assistance in the learning process, ease in improving fine motor skills, and the game's ability to observe children's fine motor skills. However, on aspects of learning motivation and connection with other developmental aspects, she gave a score of 3, with a total score of 89.2%. Dr. Yudithia gave a score of 3 on aspects of learning opportunities and learning motivation, but agreed with Nur Anisa on other aspects with a total score of 85.7%. The main input was the importance of safety in game use and creating clearer guidelines.

### **3.2.3. Product Validity According to Early Childhood**

Based on assessments of children's interest and motivation as well as demonstrated fine motor skills, the Pot Artistry game proved effective. Children showed high interest in pot decorating activities with many achieving perfect scores (20/20). This interactive and fun activity kept children focused and following directions well. In the fine motor skills category, most children were able to use scissors and attach materials according to instructions with high scores. Children's interest and motivation received an average score of 88%, while fine motor skills received an average score of 84.16%.

### 3.2.4. Strengths and Weaknesses of the Product

The Pot Artistry game has several strengths and weaknesses. The strengths of this game are encouraging children to be creative and express themselves through pot design and decoration, teaching children to be patient and diligent in completing projects that require several steps, and providing a sense of achievement and pride when children see their completed work. However, this game also has weaknesses, namely requiring investment in materials and tools such as pots, paint, brushes, and decorations which can be quite expensive. Painting and decorating pots can also create mess, requiring more preparation and cleaning. Additionally, this game may not be suitable for younger children or those who do not yet have sufficient basic motor skills. This game is also suggested to be done only once because if repeated, children can easily get bored.

## 4. Conclusion

The Pot Artistry game is valid for stimulating fine motor skills in children aged 5-6 years. Material experts gave satisfaction scores of 94.4% to 100%, and game experts provided positive assessments with notes for improvement. Children showed high interest and improvement in fine motor skills, with an average score of 88% for interest and motivation, and 84.16% for fine motor skills.

The advantages of this game include encouraging creativity, teaching patience, and providing a sense of achievement. Its disadvantages include expensive material costs, potential for mess, and risk of boredom. With improvements in guidelines and safety, Pot Artistry can become an effective and enjoyable learning tool for young children.

## References

- Asmuddin, A., Salwiah, S., & Arwih, M. Z. (2022). Analisis Perkembangan Motorik Kasar Anak di Taman Kanak – Kanak Buton Selatan. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 6(4), 3429–3438. <https://doi.org/10.31004/obsesi.v6i4.2068>
- Bondi, D., Robazza, C., Lange-Küttner, C., & Pietrangelo, T. (2022). Fine motor skills and motor control networking in developmental age. *American Journal of Human Biology*, 34(8). <https://doi.org/10.1002/ajhb.23758>
- Cahya, I. P., Tirtaningsih, M. T., & Pramono. (2024). Pengembangan Permainan Ular Tangga dalam Pemahaman Gizi Seimbang Anak Usia 5-6 Tahun. 11(2), 117–129. <https://doi.org/10.25273/jcare.v11i2.20302>
- Darmawanti, R. R., Jamilatusoleha, S., Fasha, A. K., Fitriyani, F., & Diana, R. R. (2023). Implementasi Permainan Sains Untuk Meningkatkan Motorik Halus Anak Usia Dini. *Edukids: Jurnal Pertumbuhan, Perkembangan, dan Pendidikan Anak Usia Dini*, 20(1), 1–10. <https://doi.org/10.17509/edukids.v20i1.47013>
- Fatimah, R. N., Rusmayadi, & Suriati. (2023). Meningkatkan Kemampuan Motorik Halus Anak Melalui Kegiatan Seni Rupa Menggunakan Media Pembelajaran Bervariasi (Vol. 5, Nomor 2).
- Firda Mahanani, A., Palupi, W., & Rahma Pudyaningtyas, A. (2022). IDENTIFIKASI PERKEMBANGAN MOTORIK HALUS ANAK USIA 5-6 TAHUN SELAMA PENERAPAN PEMBELAJARAN DARING (Vol. 10, Nomor 1). <https://jurnal.uns.ac.id/kumara>

- Hadiyanti, S. M., Elan, E., & Rahman, T. (2021). Analisis Media Loose Part Untuk Meningkatkan Kemampuan Motorik Halus Anak Usia Dini. *PAUDIA : Jurnal Penelitian dalam Bidang Pendidikan Anak Usia Dini*, 10(2), 337–347. <https://doi.org/10.26877/paudia.v10i2.9329>
- Isnaini, R., & Katoningsih, S. (2021). PROBLEMATICS OF IMPROVING FINE MOTOR ABILITIES OF CHILDREN AGE 5-6 YEARS. *Early Childhood Research Journal* ISSN Numbers: Print, 2655–9315. <http://journals.ums.ac.id/index.php/ecrj>
- Izzatulummah, M., Aziz, Abd., & Kiromi, I. H. (2023). Penggunaan Media Loose Parts untuk Meningkatkan Motorik Halus pada Anak Usia Dini di TK 'Aisyiyah Bustanul Athfal II Kota Probolinggo. *Martabat: Jurnal Perempuan dan Anak*, 6(2), 315–333. <https://doi.org/10.21274/martabat.2022.6.2.315-333>
- Mustafa, P. S., & Sugiharto, S. (2020). KETERAMPILAN MOTORIK PADA PENDIDIKAN JASMANI MENINGKATKAN PEMBELAJARAN GERAK SEUMUR HIDUP. *Sporta Sainatika*, 5(2), 199–218. <https://doi.org/10.24036/sporta.v5i2.133>
- Mustafa, P. S., Winarno, M. E., & Supriyadi, S. (2019). Penilaian Pendidikan Jasmani, Olahraga, dan Kesehatan pada Sekolah Menengah Pertama Negeri Kota Malang. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 4(10), 1364. <https://doi.org/10.17977/jptpp.v4i10.12845>
- Nurhayati, S., & Zarkasih Putro, K. (2021). *BERMAIN DAN PERMAINAN ANAK USIA DINI*.
- Oktavia Lestari, M., & Karim Halim, A. (2022). Penggunaan Media Loose Part dalam Mengembangkan Kreativitas Anak Usia Dini di PAUD Tunas Harapan. *Jurnal Family Education*, 2(3), 271–279. <https://doi.org/10.24036/jfe.v2i3.69>
- Peraturan Menteri Pendidikan & Kebudayaan Nomor 137 Tahun Standar Nasional Pendidikan Anak Usia Dini (2014).
- Pramono, Nurhasan, Kusnanik, N. W., & Winarno, M. (2019). *Playing Motion Activity Model Development to Improve Early Childhood Creative Thinking*. [www.ijicc.net](http://www.ijicc.net)
- Rohmah, S. K., & Gading, I. K. (2021). Peningkatan Kemampuan Motorik Halus Melalui Bermain Plastisin. *Jurnal Ilmiah Pendidikan Profesi Guru*, 4(1), 144–149. <https://doi.org/10.23887/jipppg.v4i1.15740>
- Safitri, L., Islam, P., Usia, A., Universitas, D., & Karawang, S. (2022). Perkembangan Kemampuan Motorik Halus Anak Usia Dini 5-6 Tahun melalui Kegiatan Memegang Pensil. *Jurnal Dunia Anak Usia Dini*, 4(2), 492. <https://doi.org/10.35473/ijec.v4i2.1441>
- Siti Nur Hayati, & Putro, K. Z. (2021). BERMAIN DAN PERMAINAN ANAK USIA DINI. *Generasi Emas*, 4(1), 52–64. [https://doi.org/10.25299/jge.2021.vol4\(1\).6985](https://doi.org/10.25299/jge.2021.vol4(1).6985)
- Zhang, L., Sun, J., Richards, B., Davidson, K., & Rao, N. (2018). Motor Skills and Executive Function Contribute to Early Achievement in East Asia and the Pacific. *Early Education and Development*, 29(8), 1061–1080. <https://doi.org/10.1080/10409289.2018.1510204>