



## Crafting Dexterity: Enhancing Fine Motor Skills in 4-5-Year-Olds through the Art of Paper Folding Origami

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### Article info

### Abstract

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*This study aims to assess the enhancement of fine motor skills through origami folding activities, employing Classroom Action Research (CAR). The research focuses on children aged 4-5 years (Group A) at Iqro Tuzrusa'adah Islamic Kindergarten, involving a total of 10 participants. Data collection utilizes observational methods, and the analysis employs quantitative descriptive techniques. The study unfolds over two cycles, and observation results indicate a noteworthy improvement in children's fine motor skills during origami paper folding activities, categorized as BSB. Pre-cycle results recorded 0% (no children), increasing to 20% (2 children) in Cycle I and further progressing to 50% (5 children) in Cycle II. These findings underscore the significance of fostering fine motor skills from an early age. Future research can explore diverse origami designs and consider longitudinal studies to understand the enduring impact on the development of fine motor skills.*

**Keywords:** Fine Motor Skills, Folding Origami, Early Childhood

### Abstrak

Penelitian ini bertujuan untuk mengkaji peningkatan keterampilan motorik halus melalui kegiatan melipat origami dengan menggunakan Penelitian Tindakan Kelas (PTK). Penelitian difokuskan pada anak usia 4-5 tahun (Kelompok A) di TK Islam Iqro Tuzrusa'adah dengan melibatkan total 10 partisipan. Pengumpulan data menggunakan metode observasional dan analisisnya menggunakan teknik deskriptif kuantitatif. Penelitian berlangsung selama dua siklus, dan hasil observasi menunjukkan adanya peningkatan yang signifikan pada keterampilan motorik halus anak selama kegiatan melipat kertas origami yang dikategorikan BSB. Hasil pra siklus tercatat 0% (tidak ada anak), meningkat menjadi 20% (2 anak) pada Siklus I dan selanjutnya meningkat menjadi 50% (5 anak) pada Siklus II. Temuan ini menggarisbawahi pentingnya membina keterampilan motorik halus sejak usia dini. Penelitian di masa depan dapat mengeksplorasi beragam desain origami dan mempertimbangkan studi longitudinal untuk memahami dampak jangka panjang terhadap pengembangan keterampilan motorik halus.

**Kata Kunci:** Motorik Halus, Melipat Origami, Anak Usia Dini

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## INTRODUCTION

Understanding the significance of fine motor skills in early life becomes more evident at this key developmental stage (Laela et al., 2023; Liew et al., 2010; Utami et al., 2023). Fine motor skills develop rapidly in the early stages of a child's life, and they play an important role in determining the amount to which a kid can regulate minute muscle movements (Harsismanto et al., 2021). The emphasis on this stage gives insights not just into physical development but also into its influence on cognitive ability and social relationships (Priyanti & Warmansyah, 2021; Setiowati & Warmansyah, 2023). Fine motor skills, for example, benefit children in everyday tasks such as eating, dressing, and communicating, as recognized by child development specialists such as (Raikes et al., 2019).

Furthermore, a thorough understanding of the elements that influence fine motor abilities in childhood is required, genetics, environment, and sensorimotor stimulation all have a part in molding a child's fine motor ability (Asakawa et al., 2019). A greater understanding of these complicated relationships can help to create effective therapies to improve fine motor abilities in early infancy. As a result, a thorough examination of fine motor abilities in the early stages of a child's life is not only necessary, but also vital in order to provide a holistic approach to supporting entire child development.

Currently, there are various concerns concerning fine motor abilities in early life that, if not handled correctly, might have serious effects. The documented loss in fine motor abilities in young children is a major source of worry. Research, there is concern about a reduction in fine motor abilities in youngsters, which may be impacted by variables such as lifestyle changes, greater exposure to electronic displays, and a lack of fine motor stimulation in the surrounding environment (Suggate et al., 2019).

The consequences of poor fine motor abilities in early childhood can be far-reaching, particularly in terms of academic development and independence. Children with reduced fine motor abilities may struggle to express themselves in writing, drawing, and participating in classroom learning activities. Furthermore emphasize that ignoring fine motor skills in early life may impede the development of social and emotional capacities (Meylia et al., 2022).

If these difficulties are not addressed or treated seriously, the long-term development of a kid may suffer. Limited fine motor abilities might make it difficult to achieve maximum academic achievement and acquire important life skills. As a result, further research is required to develop effective intervention ways to improve fine motor skills in early life, ensuring that their potential and talents are properly developed.

Several studies have offered strategies to improve fine motor abilities in early life, with sensorimotor-based intervention programs being a prevalent strategy. According to the findings of Katagiri et al., (2021), such programs can be useful in encouraging the development of fine motor abilities in youngsters. However, there are several significant limits that must be considered.

The absence of clear standards in creating and administering these programs is a possible shortcoming of this strategy. Several research, recognize show considerable

differences in intervention approaches, which can effect the consistency of outcomes between investigations (Amit et al., 2020). As a result, attempts to develop more consistent criteria or standards are required to assure the efficacy and repeatability of intervention outcomes.

Furthermore, according to Azzahra., et al (2022), certain research show that environmental and social variables have a crucial influence in the development of fine motor abilities in children. As a result, strategies that rely primarily on formal interventions may fail to address the whole range of elements impacting holistic child development. To build more complete remedies, a thorough understanding of children's social and environmental contexts is also required.

As a result, while intervention-based solutions have demonstrated effectiveness, limitations in methodological standards and inadequate attention to contextual factors point to the need for a more holistic approach to tackling fine motor abilities in early childhood. The recommended technique for improving fine motor abilities in 4-5-year-olds is origami, the art of folding paper. This strategy has distinct advantages, which may be explained by referring to relevant studies.

According to Wilson et al., (2020), the synchronization of hand-eye movements necessary during the folding process can enhance children's fine motor abilities. This practice promotes the development of fine motor abilities such as tiny muscle control and exact motions. Another benefit is that origami does not need expensive or sophisticated equipment. It is simple to apply in educational settings and households without requiring considerable expenditures. Simple and economical solutions like these can drive youngsters to participate indefinitely.

Involving youngsters in origami art may also improve their creativity and problem-solving skills (McClelland & Cameron, 2019), discovered that creative activities such as origami can boost the development of children's creativity, delivering benefits beyond fine motor abilities. Thus, utilizing origami to improve fine motor skills in 4-5-year-olds provides advantages in improving hand-eye coordination, cost effectiveness, and positively stimulating children's creativity.

The overall aim of this research is to assess the effectiveness of utilizing the art of paper folding, specifically origami, in enhancing fine motor skills in 4-5-year-old children. The study focuses on the development of small muscle control and precision of movements, with an emphasis on ensuring affordability and ease of implementation in both educational and home environments.

## **METHODS**

Classroom Action Research (CAR) was used in this study. The research data includes ten children from Group A of TK Islam Iqro Tuzrusa'adah, four males and six girls. The sampling approach used is purposive sampling, with Group A chosen as the sample since it is the topic of the improvement activity.

The observation technique is the data collecting instrument. Observation is used to track children's fine motor skill development throughout the action process, from the pre-action stage, Action I, to Action II.

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## RESULTS AND DISCUSSION

### Results

In this section, the researcher observed the activities of the children, focusing on the origami paper-folding sessions conducted by the children in Group A. The research activities were carried out over two cycles or two meetings. The assessment criteria used by the researcher included the child's ability to fold according to the pattern, neatness, and patience during the folding process. The results of the assessment observations in each cycle are presented in the following table:

Table 1. Assessment in Pre-Cycle of Fine Motor Development in Children

Category	Frequency (F)	Percentage (%)
BB (Not Developed)	5	50
MB (Starting to Develop)	3	30
BSH (Developing as Expected)	2	20
BSB (Developing Very Well)	0	0
Total	10	100
Percent	100	100

Based on the table above, the data shows that the children are categorized as BB (5 children), MB (3 children), BSH (2 children), and BSB (0 children), with a percentage of 50% BB, 30% MB, 20% BSH, and 0% BSB. This suggests that the fine motor skills of the children in Group A regarding origami paper-folding activities are still limited. Therefore, the researcher conducted observations in Cycle I to determine the next developmental stage.

Table 2. Cycle I, Fine Motor Development of Children in Group A

Category	Frequency (F)	Percentage (%)
BB (Not Developed)	3	30
MB (Starting to Develop)	3	30
BSH (Developing as Expected)	2	20
BSB (Developing Very Well)	2	20

Total	10	100
Percent	100	100

Based on the table above, it can be seen that there are 3 children (30%) in the BB category, 3 children (30%) in the MB category, 2 children (20%) in the BSH category, and 2 children (20%) in the BSB category. In this cycle, there is some progress in children's development, but it has not yet reached the desired criteria. Therefore, the researcher proceeded to Cycle II.

Table 3. Cycle II, Fine Motor Development of Children in Group A

Category	Frequency (F)	Percentage (%)
BB (Not Developed)	0	0
MB (Starting to Develop)	2	20
BSH (Developing as Expected)	3	30
BSB (Developing Very Well)	5	50
Total	10	100
Percent	100	100

Based on the table above, the children's development in Cycle II includes 0 children (0%) in the BB category, 2 children (20%) in the MB category, 3 children (30%) in the BSH category, and 5 children (50%) in the BSB category. In this cycle, there is a significant improvement in fine motor skills during origami folding activities, and it meets the expectations of the researcher. Therefore, the intervention was stopped after this cycle. To provide a clearer overview, the researcher summarized the fine motor development of children from pre-action, Cycle I to Cycle II in the following table:

Table 4. Recapitulation of Fine Motor Development in Children in Group A

Stage	BB	MB	BSH	BSB
Pre-Cycle	5 (50%)	3 (30%)	2 (20%)	0 (0%)
Cycle I	3 (30%)	3 (30%)	2 (20%)	2 (20%)
Cycle II	0 (0%)	2 (20%)	3 (30%)	5 (50%)

Based on the table above, the progression of fine motor skills through origami folding activities shows that in the pre-cycle, there were 5 children (50%) in the BB category, 3 children (30%) in the MB category, 2 children (20%) in the BSH category, and 0 children (0%) in the BSB category. In Cycle I, there was some improvement with 3 children (30%) in the BB category, 3 children (30%) in the MB category, 2 children (20%) in the BSH category, and 2 children (20%) in the BSB category. Finally, in Cycle II, there was a substantial improvement with 0 children (0%) in the BB category, 2 children (20%) in the MB category, 3 children (30%) in the BSH category, and 5

children (50%) in the BSB category. This data confirms that engaging in origami folding activities can enhance the development of fine motor skills.

## **Discussion**

The findings of this study provide a comprehensive knowledge of the changes in fine motor development in early infancy through the practice of folding origami paper. The remarkable improvement from pre-cycle to cycle II offers a good summary of the activity's effectiveness. These findings are consistent with prior study, as reported, (McClelland & Cameron, 2019) who demonstrated that artistic activities such as folding origami help improve fine motor abilities in children. This improves the current study's generalizability and offers a cohesive theoretical framework.

The findings of this study are consistent with those of (Harjanty, 2019), who found that participation in artistic activities, notably origami, adds greatly to the development of fine motor abilities in early life. Similarly, the findings of Lee et al. support the favorable influence of creative activities such as origami on the overall motor development of young children. These consistent findings across studies add to the robustness and dependability of the established link between origami activities and fine motor skill development. The current study adds to the expanding body of data supporting the incorporation of creative activities into early childhood education for holistic skill development by building on these previous research themes.

Finally, the findings of this study not only agree with the findings, but also with the works of (Ervina, 2023). These findings, taken together, provide a solid foundation for proposing the inclusion of creative activities such as origami in early childhood education to improve fine motor skills and promote well-rounded development in young learners.

Furthermore, this study adds to the work of Sandra Adetya & Gina, (2022) and Warmansyah., et al (2023), who investigated the incorporation of creative activities in early childhood education. Their findings are consistent with the current study, underlining the need of introducing creative activities such as origami as part of the curriculum.

Nonetheless, despite its tremendous promise, this study has drawbacks. The use of a small sample of youngsters from a single educational institution may restrict the generalizability of the findings. In terms of ramifications, the findings of this study promote the incorporation of more creative activities into early childhood education curriculum, such as origami folding. Furthermore, additional study might be conducted to investigate the link between certain creative activities and the development of various cognitive and emotional elements in children.

In this regard, the gathered data opens the door to additional study on many forms of creative activities that might favorably benefit early childhood development. Furthermore, future study can help us better understand other elements that may impact outcomes, such as parental involvement or the features of the home learning



environment. This research lays the groundwork for the creation of more holistic educational practices aimed at the full development of children's potential.

## CONCLUSION

This study demonstrates the strong favorable influence of origami paper-folding activities on young children's fine motor development. The key findings show a steady improvement from pre-cycle to cycle II, with a significant decrease in the number of children classified as not developed and a steep increase in those classified as developing very well. This finding clearly supports the use of origami folding art as an innovative technique for improving fine motor abilities in 4-5-year-old youngsters. The consequences include lobbying for the inclusion of more creative activities in early childhood education curricula to assist children's overall development.

## REFERENCES

- Amit, M., Chukoskie, L., Skalsky, A. J., Garudadri, H., & Ng, T. N. (2020). Flexible Pressure Sensors For Objective Assessment Of Motor Disorders. *Advanced Functional Materials*, 30(20), 1905241. <https://doi.org/10.1002/adfm.201905241>
- Asakawa, A., Murakami, T., & Sugimura, S. (2019). Effect Of Fine Motor Skills Training On Arithmetical Ability In Children. *European Journal Of Developmental Psychology*, 16(3), 290–301. <https://doi.org/10.1080/17405629.2017.1385454>
- Azzahra, R., Fitriani, W., & Desmita, J. W. (2022). Keterlibatan Orang Tua di Minangkabau dalam PAUD pada Masa Pandemi Covid-19. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(3), 1549-1561.
- Ervina, R. (2023). Efektifitas Seni Melipat Kertas Origami Terhadap Perkembangan Kreativitas Anak Usia Dini Pada Peserta Didik Kelompok B Usia 5-6 Tahun Di Ra (Roudlotul Athfal) Dewi Sartika Kecamatan Sooko Kabupaten Mojokerto. *Journal Of Early Childhood Education Studies*, 2(2), 404–444. <https://doi.org/10.54180/joeces.v2i2.3649>
- Harjanty, R. (2019). Peningkatan Kemampuan Motorik Halus Melalui Kegiatan Melipat Menggunakan Kertas Origami Pada Anak Kelompok B Tk Pgrl Dewi Anjani Otak Desa Jonggat. *JUPE: Jurnal Pendidikan Mandala*, 4(4). <https://doi.org/10.58258/jupe.v4i4.1314>
- Harsismanto, J., Fredrika, L., Wati, N., Padila, Suryani, D., & Yandrizal. (2021). Effectiveness Of Playing Origami Intervention On Improvement Of Fine Motor Development Pre School Children. *Indian Journal Of Forensic Medicine And Toxicology*, 15(1), 1107–1112. <https://doi.org/10.37506/ijfmt.v15i1.13565>
- Katagiri, M., Ito, H., Murayama, Y., Hamada, M., Nakajima, S., Takayanagi, N., Uemiya, A., Myogan, M., Nakai, A., & Tsujii, M. (2021). Fine And Gross

- Motor Skills Predict Later Psychosocial Maladaptation And Academic Achievement. *Brain And Development*, 43(5), 605–615. <https://doi.org/10.1016/j.braindev.2021.01.003>
- Laela, M. N., Ashari, F. A., & Nurcahyani, L. D. (2023). Development Of APE Jemari Keahlian To Develop Cognitive Abilities In Children 4-5 Years Old. *Indonesian Journal Of Early Childhood Educational Research*, 1(2), 97–106. <https://doi.org/10.31958/ijecer.v1i2.8158>
- Liew, J., Chen, Q., & Hughes, J. N. (2010). Child Effortful Control, Teacher-Student Relationships, And Achievement In Academically At-Risk Children: Additive And Interactive Effects. *Early Childhood Research Quarterly*, 25(1), 51–64. <https://doi.org/10.1016/j.ecresq.2009.07.005>
- Mcclelland, M. M., & Cameron, C. E. (2019). Developing Together: The Role Of Executive Function And Motor Skills In Children's Early Academic Lives. *Early Childhood Research Quarterly*, 46, 142–151. <https://doi.org/10.1016/j.ecresq.2018.03.014>
- Meylia, K. N., Siswati, T., Paramashanti, B. A., & Hati, F. S. (2022). Fine Motor, Gross Motor, And Social Independence Skills Among Stunted And Non-Stunted Children. *Early Child Development And Care*, 192(1), 95–102. <https://doi.org/10.1080/03004430.2020.1739028>
- Priyanti, N., & Warmansyah, J. (2021). Improving Critical Thinking Skills Of Early Childhood Through Inquiry Learning Method. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(2), 2241–2249. <https://doi.org/10.31004/obsesi.v5i2.1168>
- Raikes, A., Koziol, N., Janus, M., Platas, L., Weatherholt, T., Smeby, A., & Sayre, R. (2019). Examination Of School Readiness Constructs In Tanzania: Psychometric Evaluation Of The MELQO Scales. *Journal Of Applied Developmental Psychology*, 62(February), 122–134. <https://doi.org/10.1016/j.appdev.2019.02.003>
- Sandra Adetya, & Gina, F. (2022). Bermain Origami Untuk Melatih Keterampilan Motorik Halus Anak Usia Dini. *Altruus: Journal Of Community Services*, 3(2), 46–50. <https://doi.org/10.22219/altruus.v3i2.21501>
- Setiowati, E. A., & Warmansyah, J. (2023). *Parents' Beliefs, Attitudes Toward School, And School Readiness Of Preschoolers After Social Restrictions During The COVID-19 Pandemic* (Issue Icoesse). Atlantis Press SARL. [https://doi.org/10.2991/978-2-38476-142-5\\_14](https://doi.org/10.2991/978-2-38476-142-5_14)
- Suggate, S., Pufke, E., & Stoeger, H. (2019). Children's Fine Motor Skills In Kindergarten Predict Reading In Grade 1. *Early Childhood Research Quarterly*, 47, 248–258. <https://doi.org/10.1016/j.ecresq.2018.12.015>



- Utami, S. Y., Muawwanah, U., & Moha, L. (2023). Implementation Of Loose Part Media To Increase Creativity In Early Childhood. *Indonesian Journal Of Early Childhood Educational Research*, 1(2), 87–96. <https://doi.org/10.31958/ijecer.V1i2.8157>
- Wilson, P., Ruddock, S., Rahimi-Golkhandan, S., Piek, J., Sugden, D., Green, D., & Steenbergen, B. (2020). Cognitive And Motor Function In Developmental Coordination Disorder. *Developmental Medicine & Child Neurology*, 62(11), 1317–1323. <https://doi.org/10.1111/Dmcn.14646>
- Warmansyah, J., Komalasari, E., Yuningsih, R., Sari, M., Wita, A., Mardiah, U., ... & Nabila, D. F. (2023). Pelatihan Penguatan Pendidik PAUD Dalam Layanan Pembelajaran Kreatif Dan Inovatif Melalui Pembelajaran STEAM. *Journal of Social Outreach*, 2(1), 78-90.