

The Efforts to Improve Basic Writing Skills of 4-5 Year Old Children Through Rubber Seed Collage at TK Islam Al-Husein

*Fahrotul Uyun¹, Ianatuz Zahro^{*2}, Hendrik Siswono³*

^{1,2,3} Universitas PGRI Argopuro Jember, Jember, Jawa Timur

e-mail: ¹fahrotuluyun76@gmail.com, ^{*2}ianatuzzahro@gmail.com,

³hendriksiswono87@gmail.com

ARTICLE INFO

Article history:

Received: August 27, 2025

Accepted: October 16, 2025

Available online on:

October 29, 2025

Keywords:

Fine Motor Skills; Collage

Activities; Early Childhood;

Pre-writing Skills

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Published by Universitas

Muhammadiyah Tangerang

ABSTRACT

This study aims to improve the basic writing skills of children aged 4-5 years through collage activities using rubber seeds at TK Islam Al-Husein. The research employs the Classroom Action Research (CAR) method using the Kemmis & McTaggart model, implemented in two cycles, each consisting of planning, implementation, observation, and reflection stages⁴. The research subjects were 12 children from Group A, with data collection techniques involving observation, documentation, and informal interviews. The results show a significant increase from the pre-cycle to cycle II. In the pre-cycle, no children (0%) achieved the minimal "Developing as Expected (BSH)" category. After Cycle I, the achievement rose to 33.33% of children in the $\geq$ BSH category⁸. In Cycle II, 75.00% had reached the minimal category, with details as follows: Developing Well (BDB) at 33.33% (4 children), Developing as Expected (BSH) at 41.67% (5 children), and Starting to Develop (MB) at 25.00% (3 children). This improvement reflects the

effectiveness of the rubber seed collage activity in training hand-eye coordination, strengthening fine motor skills, and fostering children's motivation to learn to write. Thus, the collage method using rubber seeds can be recommended as a creative learning medium to stimulate pre-writing skills in early childhood.

Introduction

Children are unique individuals who experience growth and development in different ways and at different rates (Saripudin, 2019). They are regarded as valuable assets of the nation because they represent the next generation who will determine the country's future quality; therefore, serious attention to their development is essential (Atikah & Oktaviani, 2025). One of the most crucial supports for this development is providing appropriate stimulation, as the more frequent and higher-quality the stimulation, the greater the positive impact on children's growth (Aisyiyah & Mustika, 2019). This is consistent with the fact that children learn through experiences of seeing, hearing, and feeling (Indarwati, 2017).

Early Childhood Education (ECE) serves as a systematic intervention for children from birth to six years old, aiming to support holistic development according to their developmental stages through structured and enjoyable learning. It plays a fundamental role in guiding children toward optimal growth (Fitria et al., 2024; Pandia et al., 2022). ECE not only functions as a caregiving institution but also as the

foundation for preparing children to enter formal education by stimulating various aspects, including cognitive intelligence, social-emotional competence, physical maturity, and fine motor skills that are closely related to writing activities (Chairunnisa & Masyhuri, 2019; Nada et al., 2024).

Writing skills in early childhood have become a major concern in ECE institutions because the expectations of parents and society often do not align with developmental principles, causing children to master the technical aspects of writing while losing interest in the activity (Nadar & Wijaya, 2022). Writing, as one of the language skills closely linked to cognitive and linguistic development, includes developmental indicators such as proper use of writing tools, imitation of forms, cutting patterns, and the ability to write one's own name, as regulated in the Ministry of National Education Regulation No. 58 of 2009 (Chairunnisa & Masyhuri, 2019). This activity involves fine motor skills such as eye-hand coordination, finger strength, and wrist flexibility (Wulandari, 2024), and is referred to as *early writing*, encompassing symbol recognition, meaningful scribbles, and imitation of written forms. Early interest in writing often emerges before formal instruction but still requires consistent and appropriate stimulation (Dhida et al., 2024).

Preliminary observations at TK Islam Al-Husein revealed that although children aged 4–5 years have developed appropriately in social aspects and recognition of shapes and colors, many still struggle with basic writing skills, such as holding writing tools, controlling hand

movements, and imitating simple patterns. Repetitive and less creative learning methods were identified as contributing factors, indicating the need for a more engaging approach that involves fine motor activities. One such approach is collage using rubber seeds, which is expected to provide enjoyable learning experiences, train hand-eye coordination, and gradually improve pre-writing skills.

Children's writing ability is closely related to fine motor development because it requires coordination of small muscles in the hands and fingers. Therefore, activities that can stimulate these muscles are essential. Collage, an activity of sticking various materials onto patterns or images, trains finger and hand coordination, patience, accuracy, and creativity (Nurjanah et al., 2021). According to Hurlock (1978), collage activities such as pinching, arranging, and pasting strengthen the small muscles that are essential for writing, especially in holding writing tools correctly. Attractive materials can also motivate children to enhance these skills (Chairunnisa & Masyhuri, 2019). Rubber seeds, which are easy to find, can serve as a natural material that introduces children to various shapes and textures while stimulating basic writing skills through pinching, pasting, and arranging movements that strengthen writing control and precision, as well as encouraging imagination and creativity by utilizing accessible natural materials (Halimah, 2016).

Previous studies on collage activities in early childhood have generally focused on the development of fine motor skills or creativity,

such as tearing, sticking, and hand–eye coordination (Nurjanah et al., 2021; Lubis et al., 2025; Hasanah & Katoningsih, 2021), or have been conducted with children aged 5–6 years who are more prepared for independent writing (Chairunnisa & Masyhuri, 2019). Several studies used common collage materials such as paper, fabric, or cotton, without highlighting the local potential of materials (Siregar, 2023). To date, there has been no research that specifically utilizes rubber seeds as collage materials to support basic writing skills, particularly targeting children aged 4–5 years, while integrating natural, locally sourced materials as fine motor and early literacy stimuli.

This study offers novelty by combining collage methods with the use of rubber seeds as local learning media to develop the basic writing abilities of 4–5-year-old children at TK Islam Al-Husein. Rubber seeds are employed not only as accessible natural materials but also as sensory and motor stimuli in creative early literacy learning. The focus of writing skills includes the ability to hold writing tools correctly and to create straight lines, curved lines, and circles as early writing indicators. This approach has rarely been addressed in previous studies, providing an original contribution to the development of early childhood learning methods that utilize local natural materials.

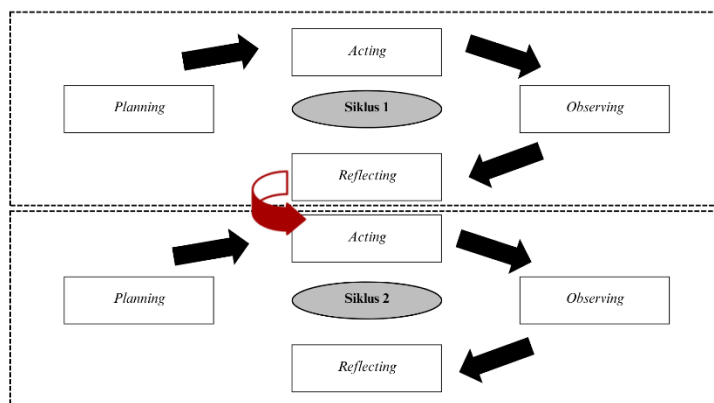
This study aims to improve the basic writing skills of 4–5-year-old children at TK Islam Al-Husein through collage activities using rubber seeds as creative and locally based learning media. Theoretically, the study contributes to the enrichment of early literacy and fine motor

development research using natural materials at the pre-writing stage. Practically, the findings are expected to serve as a reference for early childhood teachers in designing varied, contextual, and developmentally appropriate learning activities by utilizing local materials. The study specifically targets improvements in children's ability to hold writing tools properly, produce various line forms consistently, and foster motivation and interest in writing.

Methods

This study employed a qualitative descriptive approach through Classroom Action Research (CAR) conducted collaboratively between the researcher and the classroom teacher. The approach was chosen because it aligns with the goal of improving the basic writing skills of 4–5-year-old children through collage activities using rubber seeds as the main medium. Referring to Kurt Lewin's model as adapted by Kemmis & McTaggart (1988), the research design consisted of four cyclical stages: planning, action implementation, observation, and reflection, which were repeated until the success indicators were achieved. If the results in the first cycle did not meet the targeted outcomes, the strategy would be revised and continued in the next cycle.

Figure 1. Research Flowchart Based on the Classroom Action Research Model by Kemmis & McTaggart (1998)



The research subjects were all students of Group A at TK Islam Al-Husein during the second semester of the 2024/2025 academic year, consisting of 10 children (6 boys and 4 girls) aged 4–5 years. The participants were selected using purposive sampling based on the focus of the study (Sugiyono, 2016). The research was conducted at TK Islam Al-Husein, located in Kebunan RT 23/RW 13, Curah Bamban Hamlet, Tanggul Wetan Village, Tanggul Subdistrict. The site was chosen considering its accessibility, the suitability of subjects with the study's criteria, and ease of coordination with the school.

Data collection in this classroom action research aimed to obtain comprehensive information regarding the improvement of children's basic writing abilities through collage activities using rubber seeds at TK Islam Al-Husein. The techniques employed were observation, documentation, and informal interviews, which complemented each other to ensure data accuracy.

- **Observation** was conducted directly and systematically using

observation sheets based on developmental indicators of early childhood writing skills as stated in the Ministry of Education and Culture Regulation No. 137 of 2014 and the guidelines of Sugiyono (2019). The focus was on fine motor skills, accuracy, participation, and the formation of simple letters.

- **Documentation** included photos, videos, and samples of children’s collage works, serving as tangible evidence of progress from one cycle to another and supporting data triangulation.
- **Informal interviews** with classroom teachers were conducted to gather insights on behavioral changes, interest in writing, and the effectiveness of rubber-seed collage as a learning medium.

The main instrument of the study was an observation sheet containing indicators of basic writing skills such as gripping writing tools, recognizing and imitating letter shapes, and arranging them sequentially. A five-point rating scale (1–5) was used to measure the level of achievement both quantitatively and qualitatively. Data interpretation referred to the Achievement Qualification Table (Arikunto, 2016), which classified children’s performance into five qualitative categories, allowing progress in writing ability to be assessed in a measurable way (Table 1).

Table 1. Learning Implementation Qualification

No.	Achievement Percentage	Criteria
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1	80% – 100%	Very Good (A)
2	66% – 79%	Good (B)
3	51% – 65%	Fair (C)
4	35% – 50%	Poor (D)
5	0% – 34%	Very Poor (E)

Source: Ministry of National Education Regulation No. 58 of 2009 and Arikunto (2016:245)

Observation data were analyzed using a descriptive quantitative method by calculating the percentage of achievement in the development of children’s basic writing skills. The calculation was based on the scores obtained from the observation sheets and assessment rubrics, using the following formula:

$$P = \frac{f}{N} \times 100\%$$

where P represents the percentage of achievement, f the total score obtained by the children, and N the total number of observed children. The results were then classified according to the qualification table to determine each child’s fine motor development category.

Result and Discussions

TK Islam Al-Husein is a private early childhood education institution (ECE) accredited as grade “B” (Decree of BAN-PDM No. 156/BAN-PDM/SK/2024), located in Tanggul Wetan Village, Jember. Established in 2010 under the Ministry of Education and Culture, the school conducts morning sessions from Monday to Saturday, focusing on cognitive, linguistic, socio-emotional, motor, artistic, and moral-

religious stimulation. The facilities include electricity and a laboratory room, although the library remains underutilized. Preliminary observations revealed that although 4–5-year-old children at this school were developing adequately in most aspects, many still experienced difficulties in basic writing skills such as holding writing tools, controlling hand movements, and imitating letter forms. This condition was influenced by repetitive and less creative learning methods. Consequently, a more engaging approach that involves fine motor activities was required—one that could improve pre-writing abilities in a fun and meaningful way. Therefore, collage using rubber seeds was implemented to train hand–eye coordination and enhance pre-writing skills.

Table 2. Profile of Basic Writing Skills at TK Islam Al-Husein (Pre-Cycle)

Category	Frequency	Percentage
Very Well Developed (BSB)	0	0.00%
Well Developed (BDB)	0	0.00%
As Expected (BSH)	0	0.00%
Emerging (MB)	4	33.33%
Not Yet Developed (BB)	8	66.67%
Total	12	100.00%

Note: BSB = 80–100%; BDB = 66–79%; BSH = 51–65%; MB = 35–50%; BB = 0–34%.

The pre-cycle observation results (Table 2) showed that the children’s basic writing skills were still at a low level. Among the 12

children observed, none reached the categories of Very Well Developed (BSB), Well Developed (BDB), or As Expected (BSH). Four children (33.33%) were in the Emerging (MB) category, while the majority—eight children (66.67%)—were in the Not Yet Developed (BB) category. Thus, no child met the minimum target category ($\geq$ BSH), far below the expected 35%. This indicates significant limitations in fine motor control, especially in forming letters or pre-writing patterns correctly. Therefore, the previous teaching strategy could be considered ineffective, highlighting the need for a more creative and stimulating learning approach that integrates sensorimotor activities such as rubber-seed collage to improve pre-writing skills gradually and significantly.

Children categorized as Emerging (MB) generally showed curiosity toward writing activities but were easily distracted when faced with tasks requiring precision. Many struggled to hold a pencil correctly, resulting in stiff and uncontrolled hand movements. They often repeated strokes without regard to correct letter or pattern formation and required constant teacher assistance. Meanwhile, children in the Not Yet Developed (BB) category displayed more evident challenges, such as unstable sitting posture, weak hand–eye coordination, and full dependence on the teacher during pre-writing activities. These findings reinforced the need for more interactive, sensorimotor-based learning strategies that actively engage all children.

Based on these pre-cycle results, an intervention through collage activities using rubber seeds was deemed necessary. The use of this local

material was justified by its tactile appeal, ability to stimulate fine motor coordination, and relevance to the developmental goals of pre-writing skills.

Table 3. Profile of Basic Writing Skills at TK Islam Al-Husein
(Cycle I)

Category	Frequency	Percentage
Very Well Developed (BSB)	0	0.00%
Well Developed (BDB)	1	8.33%
As Expected (BSH)	3	25.00%
Emerging (MB)	8	66.67%
Not Yet Developed (BB)	0	0.00%
Total	12	100.00%

The results of Cycle I showed improvement compared to the pre-cycle, although the targets had not yet been fully achieved. Out of 12 children, 1 child (8.33%) was categorized as Well Developed (BDB), 3 children (25.00%) as As Expected (BSH), and 8 children (66.67%) as Emerging (MB). None were categorized as Very Well Developed (BSB) or Not Yet Developed (BB). Thus, only four children (33.33%) achieved the minimum target category ($\geq$ BSH), still below the expected 35%. The implementation of collage using rubber seeds had begun to yield positive effects, particularly in strengthening hand–eye coordination, finger control, and focus, though further optimization was needed in subsequent cycles.

Most children (66.67%) in the Emerging category still struggled

with maintaining focus, controlling fine motor movements, and accurately placing rubber seeds according to patterns. Those categorized as As Expected (BSH) continued to make minor errors in forming complex letters, indicating that hand–eye coordination and movement consistency still needed reinforcement. Only one child reached the Well Developed (BDB) category, while none achieved Very Well Developed (BSB). The limited variation of collage patterns used in learning also affected stimulation quality. Therefore, in Cycle II, the activities were modified by adding pattern variations, gradually increasing complexity, and applying differentiated strategies such as intensive guidance for children in the MB category and more challenging tasks for those with higher skills.

Table 4. Profile of Basic Writing Skills at TK Islam Al-Husein
(Cycle II)

Category	Frequency	Percentage
Very Well Developed (BSB)	0	0.00%
Well Developed (BDB)	4	33.33%
As Expected (BSH)	5	41.67%
Emerging (MB)	3	25.00%
Not Yet Developed (BB)	0	0.00%
Total	12	100.00%

The results of Cycle II indicated a significant improvement in children’s basic writing abilities compared to Cycle I. Of the 12 participants, 4 children (33.33%) achieved the Well Developed (BDB)

category, 5 children (41.67%) were in the As Expected (BSH) category, and 3 children (25.00%) were still in the Emerging (MB) category. No children were categorized as Not Yet Developed (BB) or Very Well Developed (BSB). A total of 75% of the children met or exceeded the minimum development target ($\geq$ BSH), demonstrating that collage activities using rubber seeds effectively improved hand–eye coordination, fine motor control, focus, and writing motivation through creative and hands-on learning.

Cycle II observations also revealed improvements in focus, engagement, and discipline. Nearly all children maintained concentration throughout the activity, followed instructions in sequence, and patiently waited for their turns. From a cognitive perspective, the activity enhanced recognition of letter shapes and writing direction, problem-solving, and self-evaluation skills, as children identified letters, counted seeds, arranged them neatly, and corrected mistakes independently. Thus, collage not only strengthened fine motor control but also supported early literacy development by reinforcing logical thinking and procedural planning.

Socially, children exhibited more collaborative and empathetic behavior—sharing materials, helping peers, negotiating turns, and showing mutual encouragement—creating a positive and supportive classroom atmosphere. Learning motivation also reached a high level, as seen from their enthusiasm during the collage-making process. Children expressed intrinsic motivation, engaging in the task not

merely for praise but for the enjoyment of the activity itself. The challenge for teachers is to sustain this motivation in future lessons by continuing to use creative, exploratory, and hands-on learning strategies.

Analysis of each developmental indicator from pre-cycle to Cycle II showed that the highest improvement occurred in the ability to create marks or drawings resembling letters or shapes (Indicator I.4), which increased by 1.83 points. The ability to make vertical, horizontal, and diagonal lines (I.2) improved by 1.67 points, while the ability to trace simple letters or patterns (I.3) rose by 1.58 points. The lowest improvement occurred in the ability to make circular shapes using writing tools (I.1), which increased by 1.50 points. Although the degree of progress varied, all indicators showed meaningful growth, confirming that collage activities using rubber seeds provided effective fine motor stimulation for writing readiness.

These findings align with Piaget's theory of cognitive development (1952), which posits that during the preoperational stage (ages 2–7), children actively use symbols and concrete representations to understand abstract concepts. Therefore, effective learning should involve tangible, manipulable media (Downing, 1970; Piaget, 1952). The act of sticking, arranging, and forming letter patterns in collage provides sensorimotor experiences that integrate cognitive, motor, and socio-emotional development (Arina et al., 2024). The consistent progress demonstrated the effectiveness of concrete media in facilitating

children's transition from exploration to structured skill development, in line with Piaget's concept that learning occurs through actions internalized into mental schemas. However, the presence of three children (25.00%) still in the Emerging category (MB) indicated the need for additional scaffolding to enhance hand-eye coordination and focus, given that cognitive development varies individually (Piaget in Marti, 2013).

Furthermore, the use of collage also supported children's problem-solving, planning, and evaluation abilities, reflecting the assimilation and accommodation processes described by Piaget (Ginting, 2018). Positive social behaviors such as cooperation and negotiation observed in class further strengthened cognitive development through shared experiences (Babullah, 2022). Utilizing local materials in collage provided contextual relevance, making the learning process more meaningful to the children's everyday environment.

The results also corroborate Gallahue & Ozmun's (2006) and Goodway, Gallahue, & Ozmun's (2013) theories of fine motor development, which emphasize that fine motor skill acquisition is a gradual process influenced by neural maturation, learning experiences, and repetitive practice. These skills involve coordination of small muscles, particularly in the fingers and wrists, integrated with visual control to perform precise movements such as writing, drawing, or manipulating small objects. The improvement across all indicators confirmed that hands-on activities like rubber-seed collage effectively

stimulate fine motor coordination, concentration, and readiness for writing among preschool-aged children.

Conclusion

Based on the results of the two action research cycles, it can be concluded that the implementation of the collage method using rubber seeds as a local medium was effective in improving the basic writing skills of 4–5-year-old children at TK Islam Al-Husein. The improvement was clearly demonstrated through the increased achievement rates from the pre-cycle to Cycle II. In the pre-cycle, none of the children (0%) reached the minimum expected development category. In Cycle I, the percentage increased to 33.33%, and in Cycle II, the majority of children (75.00%) achieved or exceeded the minimum expected category ($\geq$ BSH), with the distribution of 4 children (33.33%) in the Well Developed (BDB) category, 5 children (41.67%) in the As Expected (BSH) category, and 3 children (25.00%) in the Emerging (MB) category. These results indicate that the collage method using rubber seeds successfully supported children's fine motor development, hand–eye coordination, and early letter recognition through concrete and creative learning activities aligned with developmental stages. In addition to technical skills, this method contributed to improvements in focus, self-regulation, intrinsic motivation, and positive social interaction during the learning process.

Based on these findings, it is recommended that early childhood educators adopt the collage method using diverse and locally available materials, while adjusting the level of difficulty progressively according

to children's abilities. Intensive guidance should be provided for children who still experience fine motor challenges, accompanied by differentiated task strategies to ensure that each child receives appropriate learning stimulation.

For future research, it is suggested to examine the effectiveness of this method with different age groups, compare it with other types of concrete media, and further explore its impact on cognitive and social-emotional development. Such studies would contribute to strengthening local-material-based learning innovations in early childhood education that are both creative and developmentally appropriate.

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