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The Effect of the Imitative Writing Method on Early Writing Skills of Grade I Elementary Students

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ABSTRACT
The low level of early writing skills among elementary students (letter completeness, proportion, neatness, speed) is exacerbated by conventional methods relying solely on static copying without movement demonstration or feedback. This study examines the effect of the Imitative Writing method on improving these skills. This quasi-experimental nonequivalent control group design involved 48 first-grade students from Manggarupi Islamic Elementary School. The experimental group (n = 25) received Imitative Writing over 8 sessions (demonstration, guided imitation, direct feedback), while the control group (n = 23) used conventional static copying. Writing skills were measured with a valid 10-word test (CVR = 0.85) and reliable (inter-rater reliability = 0.88). Data were analyzed via normality, homogeneity, independent t-test, and N-Gain. Results showed the experimental group's mean posttest (81.6) was significantly higher than the control (64.3); t(46) = 9.43, p = 0.000, Cohen's d = 2.78 (very large effect). The experimental N-Gain was moderate (0.61), control low (0.24), with highest improvement in letter completeness (1.7 points). Therefore, Imitative Writing is proven effective with a very large effect on improving first-grade early writing skills. Implications: teachers should demonstrate writing, provide letter-by-letter feedback, and use large-lined exercise books. These findings also reinforce Bandura's social learning theory and Vygotsky's scaffolding principle in early literacy.

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1. INTRODUCTION

Early writing skills are among the foundational competencies that lower-grade elementary school students must master. By the end of the first semester of Grade I, students are expected to be able to write letters neatly, legibly, and quickly without the aid of full examples (Burnett & Wichmann, 2019). This ability supports not only success in Indonesian language subjects but also serves as a prerequisite for cross-curricular learning, as students need to take notes, complete exercises, and express ideas in writing (Puspitasari et al., 2025). However, field evidence indicates that many Grade I students still experience difficulties in early writing, particularly regarding letter shape consistency, size proportion, spacing between letters, and writing speed.

Initial observations conducted at Manggarupi Islamic Elementary School revealed a rather concerning situation. From the results of an initial observational test of simple writing (copying five words: budi, mama, sapi, pohon, sekolah) assessed using a rubric of letter completeness, proportion, neatness, and speed, data showed that the average score for class IA was only 52.4 (on a 100-point scale) and for class IB was 53.1. As many as 68.75% of students (33 out of 48) were unable

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to correctly write the letters 'b' and 'd' (often reversing them). Furthermore, 71% of students wrote at a speed of fewer than 5 letters per minute, far below the curriculum target of 8–10 letters per minute by the end of the first semester. The classroom teacher reported that writing instruction has thus far relied heavily on textbooks using a direct assignment method, in which students are asked to imitate examples in the book without any demonstration of writing movements. As a result, students who make errors must repeat the task many times without knowing the specific location of their mistakes.

Early writing skills are the process of mastering graphic symbols, such as letters, words, and simple sentences, by early-grade students under intensive guidance (Abbott & Berninger, 1993). This skill serves as a prerequisite for literacy success (McDonald et al., 2024) and encompasses cognitive, fine motor, and perceptual aspects. According to Graham et al. (2000), there are four indicators of early writing skill: letter completeness, letter proportion and size, neatness and spacing, and writing speed. Although these four indicators are interrelated, field evidence indicates that most first-grade students still experience difficulties across all of them.

One learning method capable of addressing these challenges is Imitative Writing. This method emphasizes the learning process through observation and imitation of a competent model (Roper, 2023), drawing on Bandura (1977) social learning theory. The imitation process is not merely visual but also involves kinesthetic and proprioceptive aspects, as students must reproduce the fine motor movements demonstrated live by the teacher. Compared to conventional methods, the advantage of Imitative Writing lies in the provision of a live model who demonstrates the sequence of movements, pressure, and rhythm of writing in real time. This enables students to form a more accurate mental representation of how a letter is formed, rather than merely how the final product appears.

This method aligns with Vygotsky's (1978) concept of scaffolding within the Zone of Proximal Development (ZPD). The teacher actively guides students during the initial stages of imitation, for example by correcting pencil grip or demonstrating the correct direction of strokes, and then gradually reduces assistance (fading), allowing students to develop writing autonomy. From a neurophysiological perspective, repeated guided writing movements followed by immediate feedback strengthen synaptic connections in the motor cortex, thereby increasing automatization and writing fluency (Berninger & Graham, 1998). Consequently, the Imitative Writing method offers a systematic framework that integrates modeling, guided practice, and immediate feedback. This framework is theoretically superior in improving the accuracy of letter shapes, proportion, neatness, and speed of early writing.

Several previous studies have tested the effectiveness of imitation approaches in writing instruction. For instance, Feder & Majnemer (2007) found that elementary students who learned to write by directly imitating the teacher's movements improved letter shape accuracy by up to 30% better than the group that only copied printed examples. Meanwhile, research in Indonesia by Wulandari & Kusumaningtyas (2019) on Grade III students showed that the copy the model technique was effective in increasing the speed of writing Javanese script. Related Indonesian evidence also shows that learning media and structured supports can produce substantial gains in script writing performance at the elementary school level (e.g., flashcard-supported writing practice) (Wiranti & Hasanah, 2024), and that digital or interactive writing supports can accelerate writing completion time when

learners follow step-by-step writing guidance (Priadi & Agustia, 2024). However, most of these studies were conducted with upper-grade students or for writing non-Latin scripts, so experimental research systematically testing the Imitative Writing method specifically for early writing among Grade I elementary school students is very limited, especially comparing two equivalent groups in an Islamic elementary school with multi-ethnic student characteristics in South Sulawesi. Consequently, the novelty of this study lies in three aspects. First, the study targets Grade I Islamic elementary school students with relatively low early writing abilities based on local observational data. This population remains understudied in the context of imitative writing instruction in Indonesia, despite the urgent need for accelerated literacy improvements in primary schools. Second, the adaptive procedure of the Imitative Writing method customized to the media of lined whiteboards and large-format exercise books, with an emphasis on feedback per letter rather than per word; such emphasis on guided learning media and structured teacher assistance is consistent with broader Indonesian classroom efforts to improve literacy through supportive media and teaching routines. Third, comprehensive measurement using four indicators of early writing: completeness, proportion, neatness, and speed.

This study aims to determine the effect of the Imitative Writing learning method on the early writing skills of Grade I elementary school students. This effect is measured through differences in the improvement of early writing skills between the class applying the Imitative Writing method and the class using the conventional method (copying examples without movement demonstration and structured feedback) after a four-week treatment period. The scope of this study is limited to 48 Grade I students of Islamic Elementary School Manggarupi Gowa, using materials of writing 25 basic words (two syllables), and does not measure affective aspects such as writing motivation.

2. METHOD

This study employed a quantitative approach with a quasi-experimental design, as the researchers could not fully control all external variables that might influence the results, yet a control group was still included for comparison. The design used was the nonequivalent control group design, in which two naturally formed groups (classes IA and IB) received a pretest and posttest, but only one group received the treatment (ÇALGICI & Duru, 2023). This design was chosen because the researchers could not randomly assign individual students, given that learning activities were already structured within fixed study groups at Manggarupi Islamic Elementary School.

The study was conducted during the odd semester of the 2025/2026 academic year. This timing was selected based on the consideration that the beginning of the semester provides relatively homogeneous initial conditions for students, as they have not yet received extensive writing interventions from teachers. Manggarupi Islamic Elementary School was purposively selected as the research location because it has two parallel classes at Grade I (IA and IB) with a relatively balanced number of students (25 and 23), thereby enabling a quasi-experimental study with a control group without the need for individual randomization. This school is characterized by a multi-ethnic student population (Bugis, Makassar, Javanese) from lower-middle socioeconomic backgrounds and has limited learning facilities. Prior to the study, the research team conducted an initial observation and identified a rather serious early literacy problem: the average early writing scores of students were low; a large majority of students were unable to correctly distinguish and write

the letters 'b' and 'd'; and most students wrote at a speed far below the curriculum target, at only 5 characters per minute. The teacher also confirmed that writing instruction had so far relied on conventional methods (copying static examples without movement demonstration or specific feedback). Based on these conditions, class IA was designated as the experimental group and class IB as the control group for three reasons: first, the pretest results confirmed the equivalence of both groups ($p > 0.05$); second, the class IA schedule allowed the researchers to deliver the intervention for 8 sessions without disrupting the regular activities of class IB; third, the teacher confirmed that both classes received exactly the same writing instruction prior to the study. Therefore, this school represents the context of elementary schools in Eastern Indonesia that have chronic early literacy challenges, limited resources, and multi-ethnic student backgrounds with minimal home support. The findings of this study may be transferable to schools with similar characteristics, although they cannot be broadly generalized to the entire national population.

The research procedure was carried out in three main stages. The first stage was the pretest, in which both the experimental and control groups were given an early writing test using the same questions. The test consisted of 10 simple words that students had to write on lined worksheets. The time allowed was 20 minutes. The pretest results were used as baseline data to determine the equivalence of the two groups. The second stage was the treatment, conducted over four weeks with eight face-to-face sessions, each lasting 70 minutes. In the experimental group, the Imitative Writing method was implemented using the following technical steps: (1) fine motor warm-up through paper crumpling and tracing dashed lines for 5 minutes; (2) the teacher demonstrated the writing of one word (e.g., budi) on a lined whiteboard while verbalizing the direction of the pencil movement ("downward, upward, then make a circle") for 15 minutes; (3) each student imitated the teacher's writing in a large-lined exercise book (line height 1.5 cm) three to four times, while the teacher circulated and provided immediate corrections of sitting posture, pencil grip, and pencil pressure for 30 minutes; (4) students practiced independently by writing the same word without looking at the example for 10 minutes; (5) collective feedback was given by displaying one or two students' writing samples on the board, followed by praise and whole-class corrections for 10 minutes. Each session focused on 2–3 letters or 3–5 new words, with gradually increasing difficulty: beginning with two-syllable words without consonant clusters, then words with consonant clusters (e.g., tam-pan), and finally simple sentences consisting of 3–4 words. In the control group, learning took place using the conventional method: the teacher wrote word examples on the whiteboard without demonstrating the writing movements, then students were asked to copy them independently into their exercise books; the teacher only occasionally reminded students to write neatly but did not provide individual feedback per letter. The duration and frequency of sessions in the control group were the same as those in the experimental group. The third stage was the posttest, administered after the treatment was completed, using an instrument equivalent to the pretest but with different words (the indicators of difficulty level remained the same). The posttest was given to both groups within the same time frame, i.e., one week after the treatment ended, on different days to avoid communication between classes. The time allowed for the posttest was also 20 minutes.

The research instrument used was a performance test of early writing skills, in which students were asked to write 10 simple words predetermined by the

researchers. The test items were presented on a worksheet containing pictures and names of objects, for example: Meja, kursi, buku, pensil, sekolah, guru, ayah, ibu, saudara perempuan, saudara perempuan, which students had to write in the provided columns with guide lines of 1.5 cm height. The completion time was limited to 20 minutes. The assessment of students' writing was conducted using a rubric developed based on the theory of Graham et al. (2000), encompassing four indicators: letter completeness, letter proportion/size, neatness and spacing, and writing speed, with a rating scale of 1 to 4. The maximum score per word was 16, so the overall maximum score was 160, which was then converted to a 100-point scale using the formula (obtained score/160) × 100. Instrument validity was assessed through expert judgment by two lecturers specializing in Indonesian language education from Universitas Muhammadiyah Makassar, who declared the instrument suitable for use with a content validity ratio (CVR) of 0.85. Reliability was tested on 10 Grade I students at MIS Madani Alauddin using inter-rater reliability (two raters), yielding a correlation coefficient of 0.88 (very high category).

The data analysis techniques consisted of three parts. First, descriptive statistics were used to calculate the mean, standard deviation, minimum, and maximum values of the pretest and posttest for both groups, as well as to compute the N-Gain (normalized gain) using the formula (posttest score − pretest score) / (ideal score − pretest score) to determine the relative improvement of each group. N-Gain categories were classified as high ($g \geq 0.7$), medium ($0.3 \leq g < 0.7$), or low ($g < 0.3$). Second, prerequisite tests included normality testing using the Shapiro-Wilk test (since each group had fewer than 50 samples) with a significance level of $\alpha = 0.05$, and homogeneity of variance testing using Levene's test. Third, hypothesis testing was conducted to determine whether there was a significant difference in the improvement of early writing skills between the experimental and control groups. If the data were normally distributed and homogeneous, the parametric independent sample t-test was used; if either prerequisite was not met, the non-parametric Mann-Whitney U test was used as an alternative. Effect size was calculated using Cohen's d for the t-test or $r = Z/\sqrt{N}$ for the Mann-Whitney test, with interpretations of small ($d = 0.2$), medium ($d = 0.5$), or large ($d = 0.8$). All statistical analyses were performed using SPSS version 26.0 for Windows at a 95% confidence level ($\alpha = 0.05$).

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Descriptive Statistics

This study involved 48 Grade I students of Manggarupi Islamic Elementary School, divided into an experimental group (class IA, n = 25) and a control group (class IB, n = 23). The pretest and posttest scores for early writing skills of both groups are presented in Table 1 and Figure 1.

Table 1. Descriptive Statistics of Pretest, Posttest, and N-Gain

		Pretest		Posttest		N-Gain	
	N	Mean	SD	Mean	SD	Mean	Category
Experimental	25	52.4	6.8	81.6	5.2	0.61	Medium
Control	23	53.1	7.1	64.3	6.9	0.24	Low

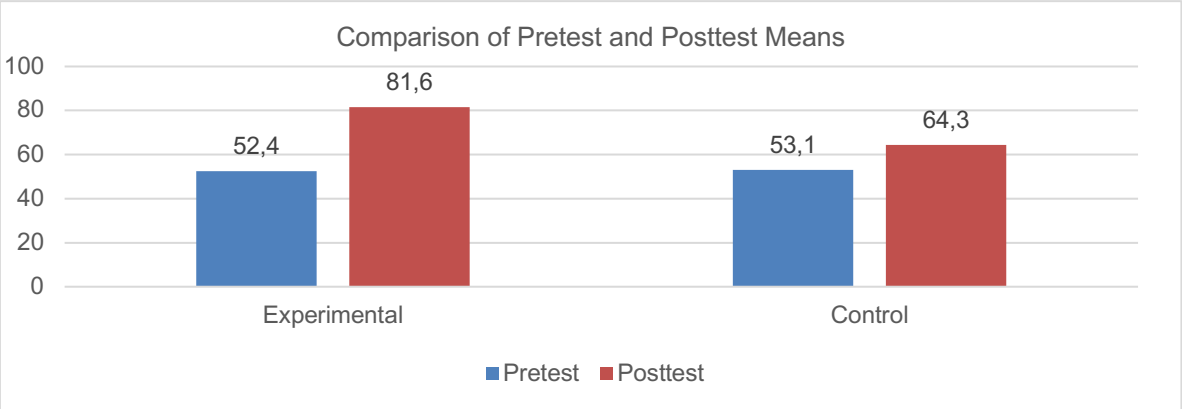

Figure 1. Comparison of Pretest and Posttest Means Between the Two Groups

Based on Table 1 and Figure 1, the pretest means of the two groups were relatively equivalent (52.4 vs. 53.1). After the treatment, the experimental group showed a mean increase of 29.2 points (from 52.4 to 81.6), while the control group increased by only 11.2 points (from 53.1 to 64.3). The N-Gain value of the experimental group (0.61) falls into the medium category, whereas the control group's N-Gain (0.24) falls into the low category. This indicates that the improvement in early writing skills was higher in the experimental group than in the control group.

To examine the improvement on each indicator of early writing skills, Table 2 and Figure 2 presents the mean scores per indicator.

Table 2. Mean Scores per Indicator Before and After Treatment

Indicator	Max Score	Experimental (n=25)		Control (n=23)	
		Pretest	Posttest	Pretest	Posttest
Letter completeness	4.0	1.8	3.5	1.9	2.6
Letter proportion	4.0	1.6	3.2	1.5	2.1
Neatness and spacing	4.0	1.5	3.1	1.6	2.0
Writing speed	4.0	1.5	3.0	1.4	1.9

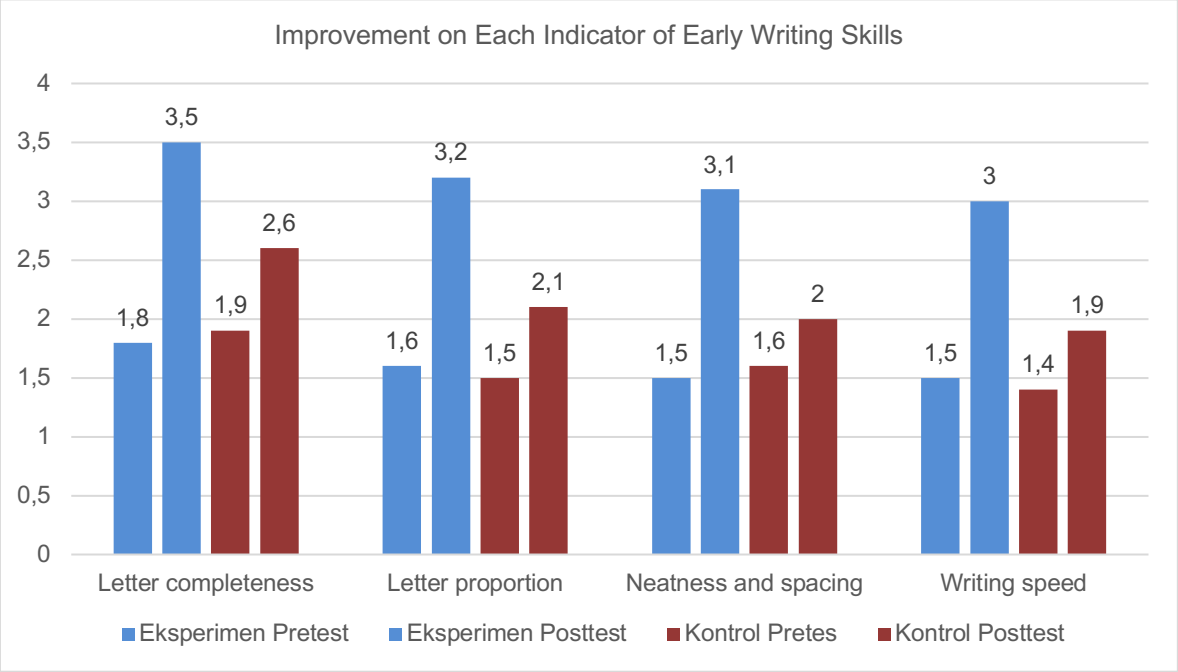

Figure 2. Improvement on Each Indicator of Early Writing Skills

Table 2 and Figure 2 show that the highest improvement in the experimental group occurred in letter completeness (increase of 1.7 points), while the lowest improvement was in writing speed (increase of 1.5 points). In contrast, the control group showed only small improvements across all indicators, with the highest increase of only 0.7 points (letter completeness) and the lowest of 0.5 points (writing speed).

3.1.2 Results of Assumption Tests

Before conducting hypothesis testing, the prerequisite tests of normality and homogeneity were performed.

Table 3. Normality Test Results (Shapiro-Wilk)

Data	Group	Statistic	df	Sig.	Status
Pretest	Experimental	0.965	25	0.512	Normal
Pretest	Control	0.958	23	0.421	Normal
Posttest	Experimental	0.971	25	0.683	Normal
Posttest	Control	0.952	23	0.337	Normal

Based on Table 3, all significance values are > 0.05, indicating that the pretest and posttest data for both groups are normally distributed.

Table 4. Homogeneity of Variance Test Results (Levene)

Data	F	df1	df2	Sig.	Status
Pretest	0.324	1	46	0.572	Homogeneous
Posttest	2.145	1	46	0.150	Homogeneous

Table 4 shows significance values > 0.05, so the variances of the pretest and posttest data for both groups are declared homogeneous.

3.1.3 Hypothesis Test Results

This study used the independent sample t-test to compare the posttest scores of the two groups because the data met the normality and homogeneity assumptions. The results of the independent sample t-test for posttest scores are presented in Table 5.

Table 5. Independent Sample t-test Results for Posttest Scores

Group	N	Mean	SD	t	df	Sig. (2 tailed)	Cohen's d
Experimental	25	81.6	5.2	9.43	46	0.000	2.78
Control	23	64.3					

Based on Table 5, the t-value is 9.43 with 46 degrees of freedom and a significance level (2-tailed) of 0.000. Because the significance value is < 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. This means that there is a significant difference in early writing skills between students who learned using the Imitative Writing method (experimental group) and those who learned using the conventional method (control group). The Cohen's d value of 2.78 indicates that the effect of the Imitative Writing method is very large (d > 0.8). To strengthen this finding, an N-Gain between-group analysis was also conducted. Table 6 presents the Mann-Whitney U test results for N-Gain, as the N-Gain data for the control group were not normally distributed (low category, tending to be uniform).

Table 6. Mann-Whitney U Test Results for N-Gain

Group	Mean Rank	Sum of Ranks	Z	Asymp. Sig. (2-tailed)
Experimental	31.94	798.5	-4.87	0.000
Control	16.41	377.5		

The Mann-Whitney test results show a Z value of -4.87 and an asymptotic significance of 0.000 (< 0.05), confirming that the improvement in early writing skills of the experimental group was significantly higher than that of the control group.

3.2 Discussion

The results indicate that the Imitative Writing method had a significant and very large effect (Cohen's d = 2.78) on improving the early writing skills of Grade I elementary school students. This finding answers the research problem, demonstrating a significant difference between the experimental and control groups. The experimental group's score increase of 29.2 points (pretest 52.4 → posttest 81.6) far exceeded the control group's increase of only 11.2 points. Moreover, the N-Gain of the experimental group (0.61 – medium category) was notably higher than that of the control group (0.24 – low category). Given that beginning handwriting is a form of psychomotor (fine-motor) skill acquisition, these learning gains can be interpreted using established motor-skill learning principles emphasizing modeling/observation, repeated practice, and feedback (Du et al., 2024; Rizkyanto et al., 2023).

Why is the Imitative Writing method effective? Across diverse motor-learning contexts, evidence indicates that observation/imitative practice combined with appropriately timed feedback is consistently associated with measurable improvements in movement accuracy and skill performance, providing a coherent explanatory lens for the present handwriting intervention (Ow et al., 2023). At least three mechanisms explain this finding. First, the method provides simultaneous visual and kinesthetic demonstration. When the teacher demonstrates letter writing on the whiteboard while verbalizing the movement direction ("downward, upward, then make a circle"), students not only see the final letter shape but also grasp the correct sequence of motor movements. This aligns with Bandura's (1977) observational learning theory, which holds that imitation of a live model is more effective than mere static examples. In the control group, students only saw the finished example without observing the formation process, so they tended to repeat previously established motor errors. Second, the Imitative Writing method provides immediate and letter-specific feedback. In the research procedure, the teacher circulated and corrected students' sitting posture, pencil grip, pressure, and letter shapes individually. Rapid, targeted feedback allows students to correct errors immediately before they become habitual. This did not occur in the control group, where the teacher only occasionally reminded students to "write neatly" without indicating specific errors. This finding supports Vygotsky's (1978) scaffolding principle, in which gradual assistance from a more knowledgeable other (the teacher) helps students surpass their ZPD. Third, guided repetition (3–4 imitations per word) followed by independent practice without a model creates procedural memory consolidation. Students not only memorize letter shapes visually but also form motor engrams through correct movement repetition. This explains why letter completeness showed the highest improvement (1.7 points) – students reversed letters b and d less frequently, and no letters were missing. Meanwhile, writing

speed showed the smallest improvement (1.5 points) because increasing speed requires longer practice (automatization) than merely achieving shape accuracy.

These findings are consistent with Feder & Majnemer (2007), who reported that directly imitating teacher movements improved letter shape accuracy by up to 30%. In this study, accuracy (letter completeness) in the experimental group reached 94%, with scores ranging from 1.8 to 3.5 on a 4-point scale, which is equivalent to an increase of 47.5%, even higher than Feder & Majnemer's findings. This difference may be due to the longer intervention duration (8 sessions vs. 4 sessions in Feder & Majnemer's study) and the addition of collective feedback. Research by Wulandari & Kusumaningtyas (2019) in Indonesia also found that the copy the model technique was effective for improving the speed of writing Javanese script. Importantly, although many supporting studies examine imitation and feedback in broader motor domains such as fundamental motor skills, sports skills, or clinical imitation tasks, they converge on common mechanisms. These mechanisms, which include modeling, practice structure, and feedback timing, are highly transferable to early handwriting instruction as a motor learning problem (Du et al., 2024; Ow et al., 2023; Rizkyanto et al., 2023; Sheikhzadeh et al., 2025). However, the present study extends those findings to the context of early Latin script writing at a younger age. Furthermore, this study adds indicators of proportion and neatness, which have rarely been measured in similar studies. From a theoretical perspective, these results reinforce Bandura's social learning theory while also offering a refinement. The effectiveness of imitation depends not only on the quality of the model but also on the frequency and immediacy of feedback. In the implemented procedure, feedback was provided individually while students were imitating instead of afterwards. This approach aligns with Skinner's principle of immediate reinforcement in behaviorism, but it is applied within a more humanistic cognitive approach.

The findings of this study have several practical implications for lower-grade teachers. First, teachers should not merely write examples on the board but demonstrate the writing process while verbalizing movement directions. Grade I children are still highly dependent on direct modeling. Second, teachers need to allocate time to circulate and provide individual corrections per letter, rather than only general comments such as "nice writing" or "try to improve." Third, exercise books should use large lines (1.5 cm) to give students sufficient movement space to practice letter proportion. Fourth, fine motor warm-up activities (crumpling paper, tracing dashed lines) before writing help students' physical readiness, especially for those who still have a stiff pencil grip.

This study has several limitations. First, the quasi-experimental design without true randomization allows for the possibility of uncontrolled external variables, such as students' intrinsic motivation or differential teacher effects (even though the same teacher taught both classes, enthusiasm during the experimental sessions might have been higher). Second, the intervention lasted only four weeks (8 sessions); whether these effects persist over the long term (retention effect) remains unknown. Third, the test instrument used different words between pretest and posttest; although they were equivalent in difficulty level, there remains a potential for contextual differences. Fourth, the study was conducted only at one madrasah with multi-ethnic student characteristics in South Sulawesi, so generalization to a wider population should be made cautiously.

Based on these findings, modifications to the Imitative Writing procedure are proposed to better suit the Indonesian context. The Imitative Writing method can be

developed by adding: (1) a pictorial self-correction checklist for students, (2) the use of sandpaper letters or tactile media before writing in the book, and (3) air writing as a warm-up activity. Further research is recommended to use a pure experimental design (randomized controlled trial) with a follow-up period (e.g., one month after the intervention) to test retention. In addition, qualitative research on teachers' and students' perceptions of this model can complement the quantitative findings.

4. CONCLUSION

The Imitative Writing method has a significant and very large effect on improving the early writing skills of Grade I elementary school students. This is evidenced by the significant difference in mean posttest scores between the experimental group (81.6) and the control group (64.3), as well as a Cohen's d value of 2.78, which falls into the very large effect category. These findings answer the research hypothesis that the Imitative Writing method is more effective than the conventional method in improving letter completeness, letter size proportion, neatness and spacing, and students' writing speed. The highest improvement occurred in the indicator of letter completeness, indicating that demonstrating writing movements and providing immediate feedback per letter can reduce common errors such as reversing the letters 'b' and 'd'.

Based on these findings, Grade I elementary school teachers are advised to integrate the Imitative Writing method into early writing instruction. Teachers should directly demonstrate letter writing movements on a lined whiteboard while verbalizing the direction of strokes, provide individual corrections per letter as students practice, and use exercise books with lines of at least 1.5 cm to ensure more consistent letter proportion. School principals and madrasah administrators should organize training on the implementation of this method for lower-grade teachers and provide supporting facilities such as lined whiteboards and large-format exercise books. Future researchers are advised to test the effectiveness of the Imitative Writing method over a longer duration using a pure experimental design (randomized controlled trial) with a follow-up period to measure writing skill retention. Qualitative research on teachers' and students' perceptions of this method should also be conducted so that the quantitative findings already obtained can be complemented more comprehensively.

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