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Advantages of Cursive Handwriting in Improving Vocabulary with 3rd Grade Students in the English Area

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Abstract: This study explores the advantages of cursive handwriting in improving English vocabulary retention among third-grade students in a public school in Ecuador. The objective of this paper was to determine whether cursive writing enhances vocabulary learning, motivation, and engagement by making a comparison with print handwriting. The research followed an action research design with sixteen students aged 7–8, who were divided into cursive handwriting and print handwriting groups. The six-week intervention consisted of two phases: a traditional, repetition-based phase, and a dynamic/associative phase focused on oral and physical expression through music and storytelling. Data was gathered from pre

and post-tests, classroom observations, and students' worksheets. The results show that, initially, the print handwriting group obtained slightly higher scores during the traditional, teacher-centred phase. However, once the dynamic/associative phase began, cursive handwriting evidently helped the students become more motivated and engaged, as this handwriting style requires more attention and promotes multisensorial integration. The students who formed the sample of this study also acknowledged having a better perception towards cursive handwriting. This conclusion is drawn from the results of a satisfaction survey conducted at the end of the study, in which 93.3% of students reported feeling content with the cursive handwriting activities. Additionally, the students found this handwriting style to be visually appealing and more engaging overall. The present study contributes to the field of English Teaching in relation to handwriting, as the evidence demonstrates that incorporating cursive handwriting into interactive activities can support motivation and contribute to more meaningful vocabulary acquisition and retention in EFL settings.

Keywords: cursive handwriting; vocabulary; motivation and engagement; retention; methodology.

Introduction

Writing is a fundamental component of language learning; however, in many educational contexts, cursive handwriting has been increasingly overlooked. In Ecuadorian elementary schools, as observed through teaching internships and community service experiences, the practice of cursive handwriting is seldom prioritised. Several factors contribute to this decline. First, the growing influence of technology has shifted students' focus to digital communication, where typing often replaces handwriting. Second, the curriculum and educational policies usually focus on other kinds of literacy skills, so there is not much time for teaching cursive. Third, teachers frequently face constraints, including insufficient time, inadequate training, and limited resources, that hinder their ability to incorporate cursive handwriting effectively. In addition, many people perceive cursive as unnecessary or outdated, and current educational priorities tend to overlook its contributions to fine motor and cognitive development, further reducing its use in schools.

Even with these limitations, writing continues to play a central role in vocabulary learning — an essential component of communication and overall proficiency in English. When students develop a broader vocabulary, they are better equipped to understand, express, and interact in the language. However, as stated by Vidal Montaña et al. (2024), vocabulary acquisition remains crucial, though challenging, for vocabulary retention, given that many educational contexts rely heavily on passive and traditional learning techniques.

In addition, current research suggests that handwriting, particularly cursive handwriting, engages fine motor skills and sensorimotor integration, which leads to stronger neural activation and more elaborate encoding of written forms (Askvik et al., 2020; van der Weel & van Der Meer, 2024).

Consequently, this paper examines the potential benefits of cursive handwriting for strengthening retention of English vocabulary among third-grade learners. The focus is on whether writing words in cursive encourages deeper learning than print writing and whether it contributes to higher levels of motivation and participation. The interest in exploring this topic initially arose from the authors' teaching practicum experiences, where it became evident that many students struggled to remember new vocabulary when relying solely on standard print forms. By integrating cursive handwriting into English instruction, this research aims to determine whether this approach can enhance learners' ability to internalise and recall new words.

Research Problem

While there is a recognised need in the ELT field to improve vocabulary acquisition and retention among learners, and there is consistent scientific evidence confirming the benefits of cursive handwriting in language instruction, there is insufficient evidence on how this style of handwriting facilitates vocabulary acquisition in primary public schools in Ecuador.

Research Focus

This study focuses on determining whether cursive handwriting has positive effects on vocabulary retention, motivation, and engagement among the third-grade students in this study.

Two phases of instruction -one traditional, one dynamic- were implemented as part of the study, with the dynamic phase applied to the cursive handwriting group. While the application of more dynamic, non-traditional instruction and its engaging features may have produced a more favourable perception among students, this study also seeks to analyse the intentional use of cursive handwriting in student-centred education and language instruction.

Research Aim and Research Questions

This paper aims to determine the advantages of cursive handwriting in improving the retention of English vocabulary among third-grade students.

1. To what extent does cursive handwriting influence the retention of English vocabulary in comparison to print writing?
2. What cognitive and motor processes are involved when students use cursive handwriting, and how do they support vocabulary learning?
3. How do students' levels of motivation and engagement differ when learning English vocabulary through cursive handwriting versus print handwriting?

The article is organised as follows. The first section introduces the theoretical framework and reviews key concepts and prior research on handwriting and vocabulary development. The methodology section describes the participants, instruments, and research design. The subsequent results section will report on the data analysis, followed by a discussion that will provide insights into the expected contributions of cursive handwriting to vocabulary retention. Finally, the conclusion summarises the implications of the findings for English language teaching in Ecuadorian elementary schools.

Literature Review

Before delving into the theoretical and experimental aspects of this study, it is essential to define key concepts. Cursive handwriting is understood as a writing style in which letters connect to allow smoother and faster movement, while print handwriting consists of forming each letter separately. Vocabulary retention refers to learners' capacity to store and later retrieve new words. Reward-based learning centres on the use of positive reinforcement to strengthen desirable learning behaviours. Other key notions include student engagement — associated with motivation and active involvement — and interactive learning, which encourages creativity, associative thinking, and meaningful contexts to support long-term retention (Fitriyani, 2021; Bravo & Alves, 2020).

A growing body of research has highlighted the role of handwriting, especially cursive, in cognitive and linguistic development, highlighting its contribution to vocabulary learning in English as a foreign language (Nafsanto et al., 2022; van der Weel & van der Meer, 2024; Zapata Vásquez, 2020). Similarly, another study demonstrates that handwriting engages motor and neural pathways that facilitate memory consolidation, allowing learners to internalise and recall words more effectively (Pei et al., 2021; Vinci-

Booher et al., 2021). Furthermore, handwriting integrates fine motor skills with cognitive processing, reinforcing the mental representation of words and improving long-term retention (Nafsanto et al., 2022).

Vocabulary learning should begin during the earliest stages of education, as it involves a cognitive reorganisation of words that support long-term lexical development (Sánchez-Piragauta, 2022, as cited in Berthely Barrios & Esquivel Gámez, 2023, p. 42). Similarly, Anchundia and Vélez (as cited in Rodríguez-Aguilar et al., 2023, p. 290) note that the development of writing skills is closely tied to the use of teaching strategies that strongly impact students' learning. Cursive writing is one example, as it brings together motor movement, visual support, and repeated contact with words in ways that help strengthen vocabulary retention, writing fluency, and accuracy. Third-grade learners are particularly relevant in this process because they are still consolidating basic writing abilities while also developing comprehension and memory skills, which together contribute to their later progress in English.

Nevertheless, Xuyen and Trang (2021, as cited in Vidal Montaña et al., 2024) state that vocabulary retention problems frequently emerge in classrooms dominated by traditional teaching methods. In many public schools, English instruction relies heavily on copying from the board or repeating content from textbooks without connecting new vocabulary to authentic contexts or learners' experiences. This repetition-oriented method limits comprehension and reduces motivation, thereby hindering retention. Dewi (as cited in Fitria, 2024, p.3) further asserts that developing a passion for writing requires genuine interest and emotional engagement. When learners perceive writing as an enjoyable and rewarding process, both motivation and performance increase. In line with these findings, classroom observations from this study revealed that students who practised cursive writing demonstrated greater motivation and enjoyment during writing tasks.

In contrast, the students who worked with print handwriting. Although they achieved clear and visually correct forms, they showed noticeably less motivation. One possible explanation is that print handwriting, being more straightforward and quicker to execute, offers an immediate feeling of neatness and completion. This can create short-term satisfaction; however, it does not necessarily encourage deeper involvement with the task or lasting vocabulary retention. Among the different approaches to teaching vocabulary, dictation remains particularly relevant because it directly links listening and writing, allowing students to process sounds, recall words, and reproduce them accurately. According to Syakur (as cited in Arteaga Giler & García Farfán, 2025, p. 30), dictation is one of the oldest and most effective techniques for both teaching and assessing foreign languages. It enables students to connect auditory input with written output, reinforcing the association between sound and meaning — an essential process in second language acquisition. In this study, dictation was implemented as a preparatory activity before testing, allowing students to reinforce vocabulary through short, contextualised exercises that supported the integration of listening and writing skills.

The development of handwriting skills is also influenced by observation and imitation. Morris (2020) explains that writers are often inspired by the handwriting of others, stating, "When they are satisfied with the way they write it and how it looks (because it is like dad's), they will begin to write it without paying further attention to its details. They have mastered the writing of the letter" (p. 18). This reflection illustrates how handwriting mastery evolves through practice, imitation, and automatization. At this developmental stage, third-grade students possess the plasticity and adaptability required to transition between print and cursive writing — an important factor when analysing how each writing style influences vocabulary learning.

Beyond technical skills, creativity and autonomy are essential in English language learning. Zuparova et al. (2020) argue that it is necessary "not just to teach creatively but also to teach creativity, to teach learners to see differently, to take risks, to do things differently, to take decisions, to be different" (p. 105).

This approach points out that students must not only reproduce content but also engage creatively with language. During the intervention, innovative and participatory methods revealed that when students were encouraged to explore new ways of learning, even those initially labelled as low achievers achieved results comparable to those of their peers, emphasising the importance of inclusive and dynamic teaching practices.

In modern education, visual literacy has also become an essential component of language learning. As Aedo and Millafilo (2022) state, students construct meaning by combining text, images, and design, which requires them to interpret multimodal information. In this study, flashcards were used to create visual representations of vocabulary, strengthening connections between written form and mental image. This strategy, applied during the transition from traditional to modern methods, enhanced both students' comprehension and motivation.

Early writing abilities and motor development are also key components of later literacy success. Tortorelli et al. (2022) point out that early writing performance is one of the most reliable indicators of future progress in reading and writing. Along the same lines, Escolano-Pérez et al. (2020) note that motor skills are often underestimated in educational settings because they are assumed to develop on their own as children grow. However, preschool instruction plays a crucial role in shaping both motor and early literacy skills. Özkür (2020) explains that the activities children engage in during these early years lay the foundation for these abilities, and weaknesses in either dimension can hinder the development of reading and writing. For this reason, fostering motor growth through handwriting from early childhood becomes essential for solid literacy and vocabulary learning.

In this study involving third-grade learners, several contextual factors influenced how well students retained new vocabulary.

As this study progressed, multiple contextual aspects of the third-grade setting influenced students' retention of the taught vocabulary. Frequent absentism caused some children to miss key lessons, which affected their ability to internalise new vocabulary. Additionally, three changes in English teachers during the study created uncertainty and, at times, reduced attention and engagement. Inconsistent teaching practices, such as inaccurate pronunciation by substitute tutors, sometimes led to regressions in retention, emphasising the need for accurate and consistent language input (Contreras Avendaño et al., 2024; Miranda, 2021). Literacy limitations in students' mother tongue also compounded challenges: according to the latest national census conducted by the Instituto Nacional de Estadísticas y Censos (INEC, 2023), 3,7% of the over 15 years old remained illiterate. Regular attendance and foundational literacy skills are, therefore, crucial for developing English proficiency (Castillo & Rojas, 2023).

Despite these challenges, the students who worked with cursive handwriting showed evident progress. One case that stood out was that of a timid student who initially could not read or write. When the new vocabulary was connected to familiar ideas and practised through cursive-writing activities, the student began to improve steadily. Little by little, this learner became more engaged, more confident, and better able to remember the new words. These observations are consistent with previous research showing that cursive handwriting can boost motivation, engagement, and positive emotional responses, supporting both cognitive and affective aspects of learning (Ihara et al., 2021; Askvik et al., 2020; Zapata Vásquez, 2020).

Interactive strategies, such as linking new vocabulary to prior knowledge and incorporating gestures, songs, storytelling, and brainstorming, further promoted comprehension and retention (Fitriyani, 2021; Bravo & Alves, 2020). Reward-based strategies, consistent with Skinner's behavioural framework, reinforced participation and learning behaviours while maintaining students' intrinsic motivation.

Cursive Handwriting vs. Print Handwriting

A comparison between cursive and print handwriting reveals notable differences in cognitive processing, motivation, and vocabulary retention.

Cursive handwriting, with its continuous strokes and linked letters, engages fine motor skills and neural pathways in ways that support deeper encoding of written vocabulary (Nafsanto et al., 2022; Pei et al., 2021). Because the hand moves steadily and uninterrupted, students tend to maintain their attention more easily and coordinate their movements with greater precision. This type of writing also demands careful motor control and consistent visual monitoring, which helps learners stay focused as they connect sounds, meanings, and written forms. As a result, cursive writing becomes a multisensory activity in which movement, perception, and language work together to reinforce memory formation. In line with this view, Nafsanto et al. (2022) and Vinci-Booher et al. (2021) note that the cognitive and motor engagement triggered by handwriting supports long-term retention by integrating perception, motion, and repetition in a single learning process.

Conversely, print handwriting — with its individual letters — can interrupt fluency and provide less kinesthetic involvement in memory building. While print writing is valuable for achieving clarity and neatness, the constant stopping and starting between letters can break the natural rhythm of writing and reduce automaticity. As a result, learners who rely mainly on print may devote more effort to shaping letters than to understanding and integrating vocabulary, which can limit deeper retention and comprehension (Gordon & Grieco-Calub, 2023). Even so, print handwriting remains beneficial at early stages, as it helps beginners develop accuracy and control. However, as students progress, cursive tends to offer greater speed, smoother letter connections, and better stamina for extended writing tasks, all of which support sustained attention and active involvement in learning English.

Research consistently shows that students who use cursive handwriting more frequently tend to retain vocabulary more effectively and feel more motivated and emotionally connected to their learning over those who focus primarily on print writing (Gordon & Lowry, 2024; Vinci-Booher et al., 2021). In the current study, most third-grade learners reported preferring cursive because they found it more enjoyable, more expressive, and easier to maintain over time. This preference suggests that cursive aligns well with their developmental stage, boosts participation, and strengthens both the cognitive and emotional aspects of learning English (Rojas Lema, 2021). Thus, cursive handwriting not only benefits vocabulary retention but also fosters positive attitudes toward English, especially when integrated into dynamic, interactive activities that promote involvement, associations, and emotional engagement.

Several investigations show that cursive handwriting fosters deeper cognitive engagement, fine motor coordination, and sustained attention, supporting the retention of new vocabulary and overall literacy development. In this context, Freire (1970/2000) argues that literacy is not merely a technical skill but a means of empowerment and social inclusion, underscoring the role of writing in overcoming educational inequality. From a behavioural perspective, such as that described by Skinner (1957), emphasis is placed on the impact of reinforcement and reward systems on shaping learning behaviours, which is particularly relevant when students are motivated by points, stars, or other incentives during classroom activities.

Complementing these theoretical views, other studies also point out that meaningful, creative, and interactive writing practices enhance students' emotional connection with learning, encouraging them to participate more actively and to internalise new words more effectively. In this regard, White & Arndt's (1991) model of writing emphasises the three stages of writing, pre-writing, writing, and re-viewing, which is particularly relevant in educational contexts, as it promotes planning, reflection, and continuous improvement throughout the learning process.

Building on these theoretical perspectives, the activities designed for this study encouraged students to stay motivated, reflect on their learning, and engage with vocabulary in meaningful ways. The findings showed that, although cursive handwriting did not produce a markedly higher level of vocabulary retention when compared to print handwriting, it did have a noticeable influence on students' motivation, participation, and overall enjoyment of the lessons. These outcomes indicate that handwriting — particularly cursive — fulfils an important instructional function by fostering active involvement, emotional engagement, and more thoughtful vocabulary learning among third-grade English students during writing-based tasks.

Materials and Methods

This study follows a quasi-experimental model, as the researchers assigned students to groups. Since different tools were used to collect data, the study employed methodological triangulation to analyse the results.

The authors attempted to determine the contributions of cursive handwriting in vocabulary acquisition among third-grade students in Ecuador. This allowed the researchers to capture measurable outcomes in students' vocabulary retention (quantitative data).

This study was developed in a public primary school in the city of Manta, Ecuador. The school administrators granted the researchers permission to conduct their study with the third-grade class in their assigned classroom. Every student had their own chair, and although the classroom had no internet access, the lessons were delivered as planned.

The sessions were held twice a week for six weeks. On Mondays, the researchers were allowed one educational hour (40 minutes) to work with the children. On Wednesdays, the institution facilitated two educational hours. The researchers planned the sessions weekly, and the topics covered included colours, numbers, vowels, pirates, animal sounds, and music.

Table 1

Demographic Distribution and Study Characteristics.

Characteristic	Category	Frequency (n)	Percentage (%)
Age	7 years old	13	82.4%
	8 years old	2	11.8%
	9 years old	1	5.9%
Gender	Female	9	52.9%
	Male	7	47.1%
Nationality	Ecuadorian	13	82.4%
	Venezuelan	3	17.6%
Study Group	Print Handwriting	8	52.9%
	Cursive Handwriting	8	47.1%

Note: This table presents the distribution of the sample.

Source: Authors' own elaboration (2025).

Sample and Participants

The sample consisted of 16 third-grade public elementary school students, with most children aged 7, with only 8 and 9-year-olds present (Table 1). The sample initially included 17 students; one was absent

from all sessions and was excluded from the study. Regarding gender distribution, the sample was balanced primarily, with a slight female predominance. In terms of nationality, the sample was mainly Ecuadorian, with some Venezuelans, highlighting the diversity present in the Ecuadorian education system.

Instrument and Procedure

Students were randomly divided into two groups of eight students: the Cursive Handwriting Group and the Print Handwriting Group. All participants received the same vocabulary instruction, but the handwriting style and the class methodologies used during practice activities differed by group. Each student was to memorise their group and use the assigned handwriting style.

The data was collected through multiple instruments:

- Pre-test and Post-test: Vocabulary recall tests were administered at the beginning and at the end of the intervention to measure differences in vocabulary retention between groups.
- Classroom Direct Observation: Researchers recorded student behaviour, engagement, and difficulties during handwriting activities.
- Satisfaction Survey: A survey was applied to students to measure their satisfaction with the use of each type of writing during the intervention.
- Student Work Samples: Writing notebooks and assignments were analysed to assess progress in vocabulary learning and handwriting fluency.

All instruments were applied to each student, regardless of their assigned handwriting style.

Data analysis

After data collection, the survey results were tabulated, and graphics were created using the artificial intelligence software Gemini. As for the qualitative data, all key information was noted by the researchers for subsequent analysis in the Results and Discussion sections.

Research Design and Procedures

The intervention lasted six weeks and was divided into two instructional phases:

Phase 1: Traditional/Directive Methodology (Weeks 1–3).

Both groups were learning the same vocabulary through repetition and teacher-centred instruction, without the use of dynamic aids. Students practised writing words in their assigned style (cursive or print), enabling comparison of long-term retention across instructional methods and handwriting styles.

Phase 2: Dynamic/Associative Methodology (Weeks 4–6).

During this stage, the instruction incorporated playful and associative techniques such as gestures, songs, storytelling, and phonological cues. For instance, when introducing the letter “**R**,” the teacher invited students to imitate a pirate’s “**Arrr**” sound. Each lesson concluded with a brief recall activity in which students copied the new vocabulary in either cursive or print handwriting and completed a small meaning-related task. This phase aimed to observe short-term retention and engagement.

Results

The presentation of the results follows the order of the research questions introduced at the beginning.

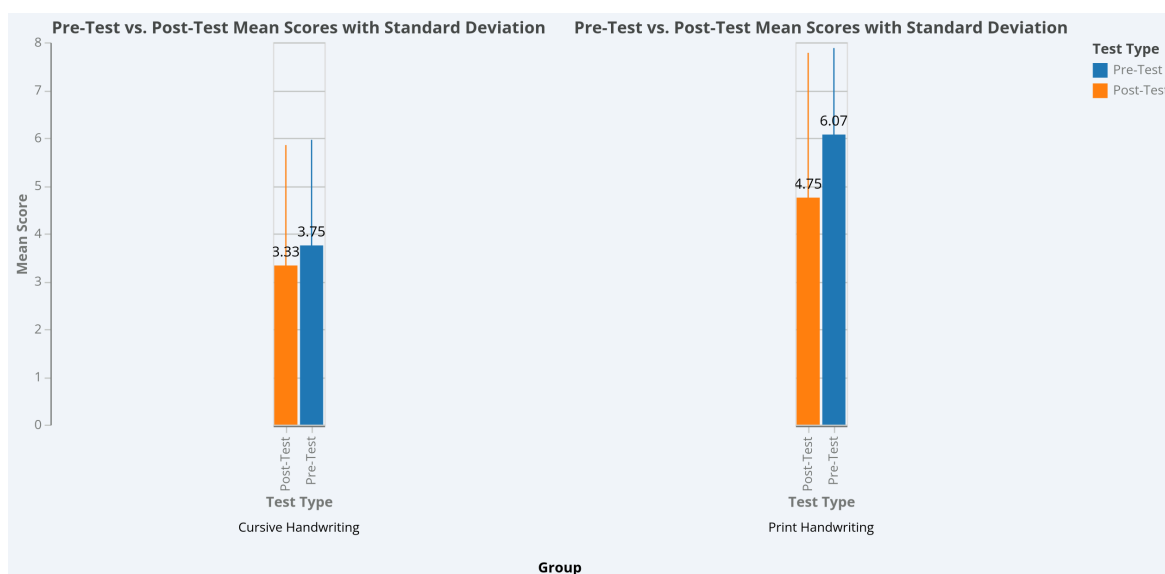
Question 1. To what extent does cursive handwriting influence the retention of English vocabulary compared to print handwriting?

As illustrated in Figure 1, an initial academic advantage does not automatically guarantee stable vocabulary retention over time. The group that used print handwriting obtained higher scores at the beginning of the intervention. Still, the decrease observed in the Post-Test, and the increase in variability indicate that this type of writing might favour immediate performance, but not sustained consolidation of learning. In contrast, the group that worked with cursive handwriting, despite starting from lower initial scores, showed greater stability between the Pre-Test and the Post-Test. This consistency suggests that cursive writing could contribute to more stable learning processes, due to the motor continuity and the higher level of sustained attention it requires.

From a pedagogical perspective, these findings suggest that learning stability may be a more relevant indicator than high initial performance, especially among primary school students. The high variability observed in both groups during the post-test demonstrates that vocabulary retention does not depend exclusively on the type of writing. Still, it is heavily influenced by contextual factors such as teaching methodology, student motivation, and engagement. Therefore, cursive handwriting should be viewed as a complementary resource within a broader pedagogical framework, rather than an isolated variable.

Figure 1

Comparison of Main Scores and Standard Deviation Between Pre-Test and Post-Test by Study Group.



Note: The main results between cursive and print handwriting in both pre- and post-test.

Source: Authors' own elaboration (2025).

2. Which cognitive and motor processes are activated during cursive handwriting, and how do they contribute to vocabulary acquisition?

Observational data indicate that handwriting styles engage students through different cognitive and motor processes (Table 2). Attention was vital for both groups, but cursive handwriting promoted sustained concentration, we argue, unlike the segmented strokes of print handwriting, which focused more on repeated pauses during the intervention. Furthermore, from a motor perspective, handwriting requires greater multisensory integration. This was a finding obtained by van der Weel & van der Meer (2024), whose results suggest greater brain connectivity and different, more specific cognitive processes when

handwriting. In addition, Thibon et al. (2018) found that some letters in the alphabet require specific movements that are more cognitively demanding than others, particularly for 6–7-year-old children. Since the cursive handwriting style involves drawing letters continuously without lifting the hand and with movements different from those used in print handwriting, we argue that this style promotes sustained synchrony between visual tracking and kinesthetic action, thereby enhancing large-scale memory encoding compared to print handwriting. Likewise, the affective dimension present in the group using cursive handwriting was closely linked to greater emotion and enjoyment, whereas in print handwriting was distinguished by a focus on visual neatness, a finding congruent to some extent with Ihara et al. (2021), who found that handwriting in general promotes positive states of mind when learning.

Table 2

Cognitive and motor processes are activated in cursive handwriting.

Cognitive and Motor Process	Print Handwriting Observations	Cursive Handwriting Observations
Attention & Concentration	Focus was intermittent; attention breaks occurred between separate letters.	Sustained attention spans were observed; continuous strokes required prolonged focus.
Fine Motor Coordination	Required discrete motor control (stop-and-start motion).	Demanded fluid, continuous motor planning, and greater precision.
Multisensory Integration	Primarily visual and auditory connections.	Strong integration visual, auditory, and kinesthetic (movement) stimuli.
Memory Encoding	Retention relied mostly on visual repetition.	Encoding was reinforced by the physical rhythm of connecting letters.
Motivation & Engagement	Motivation was tied to task completion and neatness.	High emotional engagement due to the artistic and fluid nature of the style.

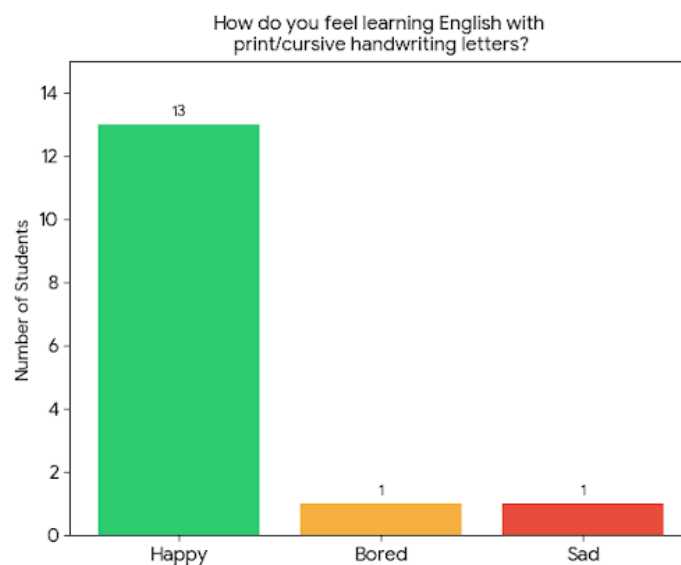
Note: Qualitative patterns recorded during classroom observations and student performance analysis.
Source: Authors’ own elaboration (2025).

3. How do students’ levels of motivation and engagement differ when learning English vocabulary through cursive handwriting versus print handwriting?

Most students reported being happy with the assigned handwriting groups, while a minority reported feeling bored or sad (Figure 2). This significant result, with mostly positive emotions, indicates that the participants, regardless of handwriting type, experienced high levels of motivation and enjoyment during the vocabulary learning process.

Figure 2

General Students' Emotions while Learning English (first survey question).



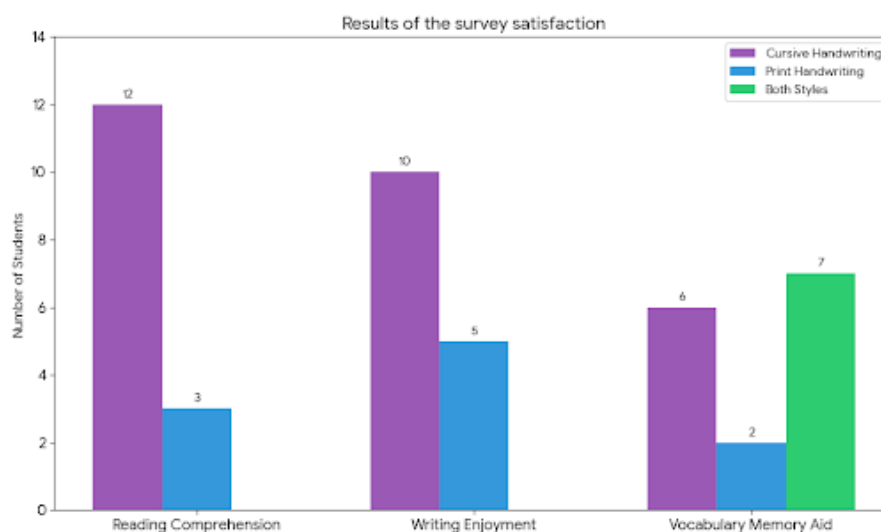
Note: Overall distribution of emotions reported by the students (N=15) during English learning

Source: Authors' own elaboration (2025).

As illustrated in Figure 3, student preferences varied noticeably across cognitive tasks. In activities related to reading comprehension and the enjoyment of writing, students showed a strong preference for cursive handwriting, identifying it as the most comfortable and satisfying style for these skills. However, in the section focused on vocabulary retention (memory aid), there was a notable change in the results. A significant number of students stated that using both writing styles, rather than relying on just one, helped them remember words more concisely. This finding suggests that while cursive handwriting promotes greater enjoyment, vocabulary encoding can benefit from the visual variety provided by using both cursive and print (mixed) handwriting.

Figure 3

Results of skill-based survey questions.



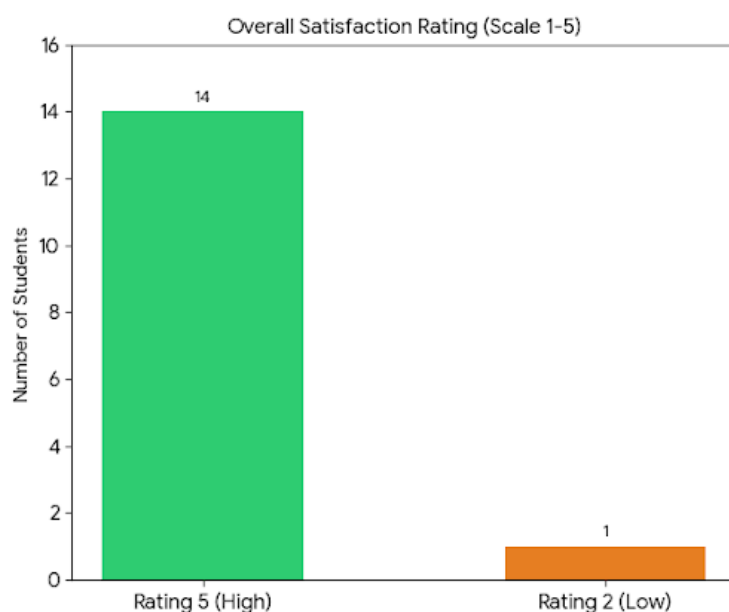
Note: Students' preferences (N=15) regarding handwriting styles across three cognitive domains.

Source: Authors' own elaboration (2025).

The satisfaction scale (Figure 4) revealed that typography significantly influenced students' motivation and enjoyment during English classes. Most participants expressed strong positive feelings toward the learning process, reporting that cursive handwriting made activities more engaging and visually appealing. These findings indicate that changes in cursive handwriting style do more than capture students' attention — they also reinforce their emotional connection to the material. When learners experience writing activities as enjoyable and creative, they tend to participate more willingly, contributing to a more positive classroom atmosphere. In this sense, incorporating cursive handwriting alongside dynamic and interactive strategies can function as a strong motivational tool, supporting both enjoyment and deeper learning during vocabulary acquisition.

Figure 4

Overall Satisfaction Rating (Scale 1-5).



Note: Overall satisfaction reported by the students (N=15) at the end of the intervention.

Source: Authors' own elaboration (2025).

As noted in the resulting data, the improved performance shown by the students assigned to the handwriting group was significantly shaped by the lessons' methodological approach (traditional/dynamic). While handwriting style was important, it was not the most significant variable. However, participants confirmed in their survey responses that the cursive handwriting style was more engaging. Interestingly, the students preferred cursive handwriting in both reading and writing activities, which require attention and constant use of letters. In contrast, in the vocabulary retention activities, both styles received the same level of preference.

Discussion

This research has allowed us to analyse the impact of cursive handwriting on English vocabulary retention, reflecting a more significant effect on motivation than on academic performance. The results presented in Figure 1 show that vocabulary retention differed by instructional phase rather than by handwriting style alone. During the traditional, repetition-based phase, students using print handwriting achieved slightly higher scores in the pre-test and post-test. However, these gains were not sustained over time, as reflected in the greater variability observed in the post-test results. In contrast, students in the

cursive handwriting group demonstrated more consistent performance between both evaluation moments, suggesting that retention stability was influenced by factors beyond handwriting form. These findings indicate that handwriting style by itself did not determine vocabulary learning outcomes.

A more apparent difference emerged when analysing the impact of the instructional approach applied during the intervention. The shift from a directive methodology in Phase 1 to a dynamic and associative methodology in Phase 2 coincided with noticeable changes in students' engagement and vocabulary recall. When instruction included movement, oral expression, gestures, and contextualised activities, students showed greater involvement and improved application of new vocabulary. This supports previous research suggesting that active methodologies promote deeper processing and more meaningful learning than repetition-focused instruction, particularly in young learners (Fitriyani, 2021; Bravo & Alves, 2020).

Although cursive handwriting did not lead to a direct increase in vocabulary test scores, classroom observations and satisfaction results indicate that it played a supportive role in the learning process. The continuous motor movement and visual flow of cursive writing appeared to help sustain attention and reinforce the dynamic methodology applied during the second phase of the intervention. Students using cursive handwriting showed higher levels of motivation and enjoyment (Nafsanto et al., 2022), which contributed to a more positive learning environment. This finding, while confirming the motivational component often associated with cursive handwriting, differs partially from previous studies (Pei et al., 2021) that detected significant improvements mainly in academic performance. In this sense, cursive handwriting functioned as a complementary tool that enhanced the effectiveness of interactive instructional strategies rather than as an isolated factor.

In a study performed by Ihara et al. (2021), 39 adult individuals were neurologically tested while learning new words by using both physical and digital handwriting, as well as typing. Though the scope of such study is much more specific and interdisciplinary, and the data obtained was increasingly bigger, the authors found that handwriting as such does not provide a substantial increase in performance (p. 9), which constitutes a point of convergence with the present study, as we found that the use of cursive handwriting evidently did not advance vocabulary learning on its own. States of mind, or moods, were also identified and studied in the paper by Ihara et al. (2021). It was found that, while no differences were observed in writing tools across most moods, handwriting, whether with an ordinary pen or a digital pen, did increase positive feelings among participants (p. 6). At first, this is a point of convergence with the present study, as the participants in this project also reported a positive feeling when learning vocabulary with handwriting. However, as the individuals tested by Ihara et al. were all adults, their emotions and personality are fully developed, which is likely to cause perceptions and emotional states different to those of young children when learning.

There are limitations to this study. The first limitation is the small sample, as only sixteen participants took part in the project. This prevents the authors from providing any generalisation. As a different limitation, the influence of the educational methodology shaped to a great extent the results and perceptions of the students towards their learning and the handwriting styles. While the authors accounted for these effects in previous sections, how exactly handwriting, and cursive handwriting in particular, influenced the acquisition process cannot be determined from the obtained data. Also, the limited number of sessions did not allow for later testing to provide insight into long-term vocabulary retention.

Conclusions

This study found that improvements in English vocabulary retention among third-grade students were primarily influenced by the teaching methodology rather than by handwriting style alone. The results indicate that instructional design played a central role in shaping students' learning outcomes.

Although the results did not fully align with the initial objective of demonstrating a direct improvement in vocabulary retention through cursive handwriting, they revealed that cursive writing promoted higher attention and engagement in the students.

The findings suggest that cursive handwriting does not increase vocabulary retention to a great extent. At the same time, however, cursive handwriting does provide opportunities for cognitive benefits, as students' motor coordination, multisensory integration and memory encoding are encouraged when handwriting in cursive letters, benefits of particular interest in young children whose cognitive development has not ended. Engagement and attention are also significantly stimulated by cursive handwriting, as the artistic and fluid nature of the handwriting style promotes those effects.

From a practical perspective, the study highlights the importance of prioritising interactive methodologies in English instruction within Ecuadorian elementary schools. Cursive handwriting may be used as a supportive pedagogical resource that enhances motivation and sustained attention when aligned with active teaching strategies.

Suggestions for Future Research

Future studies could expand sample size, as testing larger groups will allow for more reliable inferences and claims. The intervention groups could also be composed of participants of different ages, since the comparison of such ages will allow for a more comprehensive analysis of cursive handwriting effects across development stages.

The total duration of the intervention could be increased to include more sessions, enabling more precise long-term vocabulary retention tests and clarifying how long-lasting the influence of the handwriting style is.

Cognitive impairments make reading, writing and learning challenging, as they affect parts of the human brain that command vital processes and skills. One of them is dysgraphia, which makes it challenging to convert thoughts and ideas into written language. Dyslexia, on the other hand, affects reading, writing and spelling. Are handwriting styles able to aid these impairments in language learning, and if so, to what extent, is a possible new direction for future research on handwriting styles' influence in learning?

As acknowledged earlier, the educational approaches evidently influenced the results of this study. Future research should aim to control for these effects, either by testing handwriting styles across all approaches more extensively or by examining the effects of handwriting styles separately from educational approaches. A longitudinal study over an entire school year may be helpful for determining the long-term effects of handwriting styles on language instruction, too.

Specialised research teams with access to neurological equipment can certainly extend the scope of this field by comparing results from researchers worldwide with those from public primary schools in Ecuador.

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Conflict of Interest

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References

- Aedo, P., & Millafilo, C. (2022). Increasing vocabulary acquisition and retention in EFL young learners through the use of multimodal texts (memes). *Colombian Applied Linguistics Journal*, 24(2), 251–269. <https://www.redalyc.org/journal/3057/305771224037/>
- Arteaga Giler, S. S., & García Farfán, I. D. A. (2025). The impact of applying dictation through educational multimedia as a strategy to improve listening comprehension. *Mikarimim. Revista Científica Multidisciplinaria*, 11(3), 27–45. <https://revista.uniandes.edu.ec/ojs/index.php/mikarimin/article/view/4025>
- Askvik, E. O., van der Weel, F. R., & van der Meer, A. L. H. (2020). The importance of cursive handwriting over typewriting for learning in the classroom: A high-density EEG study of 12-year-old children and young adults. *Frontiers in Psychology*, 11, Article 1810. <https://doi.org/10.3389/fpsyg.2020.01810>
- Berthely Barrios, J. C., & Esquivel Gámez, I. (2023). Aprendizaje autónomo de vocabulario del inglés como lengua extranjera usando recursos multimedia. *Apertura*, 15(1), 40–55. <https://doi.org/10.32870/ap.v15n1.2299>
- Bravo, I., & Alves, M. (2020). Adecuación curricular para incremento del vocabulario del idioma inglés en los estudiantes de octavo año de Guayaquil. *Revista Tecnológica – ESPOL*, 32(2). <https://doi.org/10.37815/rte.v32n2.781>
- Castillo, N., & Rojas, E. (2023). Educación y pobreza: Factores de cambio social. *Voces de la Educación*, 6, 108–130. <https://n9.cl/le8hr>
- Contreras Avendaño, J. S., Malaver Duarte, A., Morales Vargas, J. E., & Castellanos Jaimes, J. (2024). Retos de la enseñanza del inglés: El caso de un colegio público. *Enunciación*, 29(2), 253–269. <https://doi.org/10.14483/22486798.21435>
- Escolano-Pérez, E., Herrero-Nivela, M. L., & Losada, J. L. (2020). Association between preschoolers’ specific fine (but not gross) motor skills and later academic competencies: Educational implications. *Frontiers in Psychology*, 11, Article 1044. <https://doi.org/10.3389/fpsyg.2020.01044>
- Fitria, T. N. (2024). Creative writing skills in English: Develop students’ potential and creativity. *EBONY: Journal of English Language Teaching, Linguistics, and Literature*, 4(1), 1–17. <https://doi.org/10.37304/ebony.v4i1.10908>
- Fitriyani, Y., Supriatna, N., & Sari, M. Z. (2021). Pengembangan kreativitas guru dalam pembelajaran kreatif pada mata pelajaran IPS di sekolah dasar [Developing teacher creativity in creative learning and social studies in elementary schools]. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian*

- Kepustakaan Di Bidang Pendidikan, Pengajaran dan Pembelajaran*, 7(1), 97–109. <https://pdfs.semanticscholar.org/679d/c00b8a439aad287072b58a20087d88165507.pdf>
- Freire, P. (2000). *Pedagogy of the oppressed* (M. B. Ramos, Trans.). Continuum. (Original work published 1970)
- Gordon, K. R., & Grieco-Calub, T. M. (2023). Children build their vocabularies in noisy environments: The necessity of a cross-disciplinary approach to understand word learning. *WIREs Cognitive Science*, 15(2), Article e1671. <https://doi.org/10.1002/wcs.1671>
- Gordon, K. R., & Lowry, S. L. (2024). Fostering retention of word learning: The number of training sessions children retrieve words positively relates to post-training retention. *Journal of Child Language*, 51(3), 710–719. <https://doi.org/10.1017/S0305000923000752>
- Ihara, A. S., Nakajima, K., Kake, A., Ishimaru, K., Osugi, K., & Naruse, Y. (2021). Advantage of handwriting over typing on learning words: Evidence from an N400 event-related potential index. *Frontiers in Human Neuroscience*, 15, Article 679191. <https://doi.org/10.3389/fnhum.2021.679191>
- Instituto Nacional de Estadísticas y Censos [INEC]. (2023). *Reducción del analfabetismo en Ecuador: Más de 199.000 personas libres de esta condición desde 2010*. <https://www.ecuadorencifras.gob.ec/reduccion-del-analfabetismo-en-ecuador-mas-de-199-000-personas-libres-de-esta-condicion-desde-2010/>
- Miranda, N. (2021). Appropriation of Colombian ELT policy in a targeted school. In K. M. Bailey & D. Christian (Eds.), *Research on teaching and learning English in under-resourced contexts* (pp. 72–84). Routledge. <https://doi.org/10.4324/9781003057284>
- Morris, R. (2020). *Forensic handwriting identification: Fundamental concepts and principles* (2nd ed.). Elsevier. <https://doi.org/10.1016/C2012-0-06904-9>
- Nafsanto, F. C., Mudzanatun, M., & Budiman, M. A. (2022). Analisis kesulitan belajar siswa dalam menulis huruf tegak bersambung pada kelas 2 tema 6 subtema 1 pembelajaran 2 SDN Ngampelwetan [Analysis of students' learning difficulties in cursive handwriting in grade 2, theme 6, subtheme 1, lesson 2, at SDN Ngampelwetan primary school]. *Wawasan Pendidikan*, 2(2), 504–513. <https://doi.org/10.26877/wp.v2i2.9941>
- Özkür, F. (2020). Analyzing motor development and emergent literacy skills of preschool children. *International Education Studies*, 13(4), 94. <https://doi.org/10.5539/ies.v13n4p94>
- Pei, L., Longcamp, M., Leung, F. K. S., & Ouyang, G. (2021). Temporally resolved neural dynamics underlying handwriting. *NeuroImage*, 244, Article 118578. <https://doi.org/10.1016/j.neuroimage.2021.118578>
- Rodríguez-Aguilar, R. D. P., Leyva-Aguilar, N. A., Fernandez-Pisfil, G., & Tarrillo-Vásquez, M. A. (2023). Estrategias creativas para la producción de textos en estudiantes de primaria. *Revista Tecnológica-Educativa Docentes 2.0*, 16(2), 289–296. <https://doi.org/10.37843/rted.v16i2.421>
- Rojas Lema, R. M. (2021). *Assessment of writing strategies to improve English language development in children of 8th grade: A case of a public school in Otavalo-Ecuador* (Master's thesis, Universidad Técnica del Norte). Repositorio Digital Universidad Técnica del Norte. <https://repositorio.utn.edu.ec/handle/123456789/11434>
- Skinner, B. F. (1957). *Verbal behavior*. Appleton-Century-Crofts.

- Thibon, L. S., Barbier, G., Vilain, C., Sawallis, T. R., Gerber, S., & Kandel, S. (2018). Investigating how children produce rotation and pointing movements when they learn to write letters. *Human Movement Science*, 65, 15–29. <https://doi.org/10.1016/j.humov.2018.04.008>
- Tortorelli, L. S., Gerde, H. K., Rohloff, R., & Bingham, G. E. (2022). Ready, set, write: Early learning standards for writing in the Common Core era. *Reading Research Quarterly*, 57(2), 729–752. <https://doi.org/10.1002/rrq.436>
- van der Weel, F. R., & van der Meer, A. L. H. (2024). Handwriting but not typewriting leads to widespread brain connectivity: A high-density EEG study with implications for the classroom. *Frontiers in Psychology*, 14, Article 1219945. <https://doi.org/10.3389/fpsyg.2023.1219945>
- Vidal Montaña, V. M., Vega Castillo, A. R., Alvarado Romero, M. C., Correa Riofrío, L. M., & Carrión Franco, G. M. (2024). Aprendizaje basado en tareas para mejorar la retención de vocabulario en las aulas de inglés como lengua extranjera: Un plan de intervención en estudiantes de secundaria de la ciudad de Loja. *Ciencia Latina Revista Científica Multidisciplinar*, 8(5), 12945–12955. https://doi.org/10.37811/cl_rcm.v8i5.14756
- Vinci-Booher, S., James, T. W., & James, K. H. (2021). Visual-motor contingency during symbol production contributes to short-term changes in the functional connectivity during symbol perception and long-term gains in symbol recognition. *NeuroImage*, 227, Article 117554. <https://doi.org/10.1016/j.neuroimage.2020.117554>
- White, R., & Arndt, V. (1991). *Process writing*. Longman.
- Zapata Vásquez, T. I. (2020). *El juego como estrategia didáctica para fortalecer el proceso de lectura y escritura en el grado primero* (Master's thesis, Universidad Autónoma de Bucaramanga). Red de Repositorios Latinoamericanos. <http://hdl.handle.net/20.500.12749/12136>
- Zuparova, S., Shegay, A., & Orazova, F. (2020). Approaches to learning English as the source of all subjects. *European Journal of Research and Reflection in Educational Sciences*, 8(6), 102–107. <https://www.idpublications.org/wp-content/uploads/2020/06/Full-Paper-IDIOGRAPHIC-LEADERSHIP-STYLE-AND-THEIR-INFLUENCE-ON-THE-LEARNING-MOTIVATION-AND-STUDENT%E2%80%99S-ACADEMIC-PERFORM.pdf>