

## Effects of Input Flooding and Input Enhancement on Thai EFL Students' Essay Writing: A Mixed-Methods Study

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### ABSTRACT

This study investigated the effects of input flooding, input enhancement, and their combined application on Thai EFL students' essay writing proficiency. Although these techniques have been widely examined in second language acquisition research, their combined impact on extended academic writing remains underexplored, particularly in secondary-school EFL contexts. Using a mixed-methods quasi-experimental design, three groups of Grade 11 students received instruction through input flooding, input enhancement, or a combined approach. Quantitative data were collected through pre-test and post-test essay writing tasks and analysed using paired t-tests and ANCOVA. To enhance scoring reliability, AI-assisted essay evaluation (ETS® e-rater) was employed and validated through human scoring. Qualitative data were obtained from focus group interviews to explore students' learning experiences. The findings indicated that all instructional conditions significantly improved writing proficiency; however, the combined approach produced the greatest gains in grammatical accuracy, fluency, and essay organization. Qualitative findings revealed that input flooding supported implicit learning, while input enhancement facilitated conscious noticing of grammatical structures. The combined approach reinforced both processes, resulting in higher writing confidence. The study highlights the pedagogical value of integrating structured input-based techniques with technology-assisted assessment in EFL writing instruction.

**Keywords:** EFL, Essay Writing, Input Enhancement, Input Flood, Thai Students

### Introduction

English proficiency is a basic skill for Thai students studying English as a Foreign Language (EFL) courses, particularly in academic settings where essay composition plays a significant role in language learning. English writing requires not only grammatical accuracy but also coherence, organization, and the ability to express ideas (Hyland, 2021). Effective writing skills are essential for students' success in tertiary education and future careers, enabling them to communicate effectively in domestic and global contexts. However, many Thai learners struggle to learn essay writing due to challenges in grammar, sentence formation, and vocabulary use, which makes it essential to explore pedagogical approaches to enhancing their writing skills (Wonglekha & Khamkhien, 2022).

Notwithstanding the consistent effort for the improvement of English writing instruction in Thailand, many of the EFL students continually struggle with the production of coherently written essays. Recurring obstacles include the lack of extensive exposure to authentic English writing, poor mastery of grammatical models, and inefficient processes for organizing ideas (Pattapong & Sukying, 2023). In addition, traditional pedagogic practices generally emphasize rote memorization over practice implementation, leading to passive learning experiences and zero progress for the students' writing skills (Bakhshi & Mohebbati, 2024). Therefore, the need for instruction that not only exposes students with great amounts of correct language form but also encourages participation with writing processes increases continuously (Laksanasut, 2024).

Two pedagogical practices of interest to language acquisition researchers are Input Flooding and Input Enhancement Techniques. Input flooding entails the practice of presenting learners with a great number of linguistic items within meaningful situations for the purpose of the learners' natural internalization of the correct form (Ellis, 2015). Input enhancement guides learners' notice toward

salient linguistic aspects by highlighting them using typographical devices such as boldfacing, underlining, or coloring (Smith, 1993). Although much study of these practices has taken place within the context of second language acquisition, the unique contribution of these practices toward the improvement of English as Foreign Language students' ability to write quality essays remains under-researched (Celik, 2024).

Several studies have investigated the effectiveness of these techniques in language learning. Farzaneh et al. (2024) examined the impact of input flooding on parallel structures in essay writing, finding that students exposed to high-frequency grammatical structures showed significant improvement in writing accuracy. Celik (2024) explored input enhancement in teaching collocations, demonstrating that highlighting linguistic patterns helped students retain and apply vocabulary more effectively. Additionally, Al-Shammari & Sahiouni (2023) investigated the effects of textual enhancement and input processing on syntactic development of EFL university students in Kuwait, specifically focusing on the present simple and continuous tenses. The findings indicated that both techniques positively influenced learners' writing abilities, with no significant difference between the two methods. However, there remains a gap in the research on the combined effects of these strategies on EFL students' overall essay writing proficiency, particularly in a Thai high school context. This study aims to address this gap by comparing the individual and combined effects of input flood and input enhancement on Thai high school students' writing skills.

While input flooding and input enhancement have been extensively examined within second language acquisition research, their application to second language writing, particularly extended academic writing, remains limited. Writing development involves complex cognitive, linguistic, and organizational processes that extend beyond discrete grammatical acquisition. By examining these input-based techniques in relation to essay-level writing outcomes, this study responds to calls in second language writing scholarship for pedagogical approaches that bridge linguistic input with discourse-level performance. In doing so, the study situates input-based instruction within a writing-oriented framework rather than treating writing as a by-product of grammatical development.

## Literature review

### *Theoretical Foundations: Input and Noticing*

Essay writing in EFL contexts, particularly in Thailand, is hindered by large class sizes, limited authentic input, and exam-driven curricula (Wonglekha & Khamkhien, 2022). To address these challenges, pedagogical approaches such as input flooding and input enhancement have gained attention for their role in improving students' writing proficiency (Alwaheebi, 2024; Salih, 2023). Krashen's Input Hypothesis (1985) emphasizes the role of comprehensible input in language acquisition, suggesting that exposure to slightly advanced texts can facilitate learning. Schmidt's Noticing Hypothesis (1990) extends this idea, arguing that conscious attention to linguistic features is essential for acquisition. While input flooding increases exposure to target structures, input enhancement employs visual or typographical cues to make these structures more salient. Together, these theories provide a foundation for understanding how structured input-based instruction can improve EFL students' writing skills.

### *Input-Based Instruction and Second Language Writing*

In second language writing research, effective instruction is increasingly viewed as an interaction between linguistic input, noticing, and opportunities for meaningful written output (Salih, 2023). Unlike isolated grammar learning, essay writing requires learners to coordinate grammatical accuracy, cohesion, and rhetorical organization simultaneously. Input-based techniques such as flooding and enhancement may therefore function as scaffolding mechanisms that support learners' access to discourse-level patterns in written texts (Alwaheebi, 2024). From this perspective, input flooding provides repeated exposure to rhetorical and syntactic structures commonly found in academic writing, while input enhancement facilitates learners' awareness of how these structures function within extended written discourse.

### *Challenges in Thai EFL Writing Instruction*

Thai EFL students face significant difficulties in idea generation, argument organization, and the use of cohesive devices (Wonglekha & Khamkhien, 2022). Traditional instruction often prioritizes grammar drills and memorization over meaningful writing practice, limiting exposure to well-structured academic texts. Additionally, exam-oriented teaching reduces opportunities for process-based writing tasks. These constraints suggest a need for strategies that increase both exposure to and awareness of essential writing structures without drastically altering existing curricula (Laksanasut, 2024).

### *Input Flooding: Enhancing Fluency and Accuracy*

Input flooding involves repeated exposure to specific linguistic forms to promote acquisition. Studies indicate that sustained exposure to transitional phrases and complex structures improves EFL students' fluency and accuracy in writing (Alwaheebi, 2024). For Thai learners, who typically lack rich linguistic input, this approach may provide the necessary scaffolding to internalize advanced structures. However, some research suggests that input flooding alone may be insufficient, particularly for students who require explicit attention-directing mechanisms to fully process new forms (Salih, 2023).

### *Input Enhancement: Promoting Conscious Noticing*

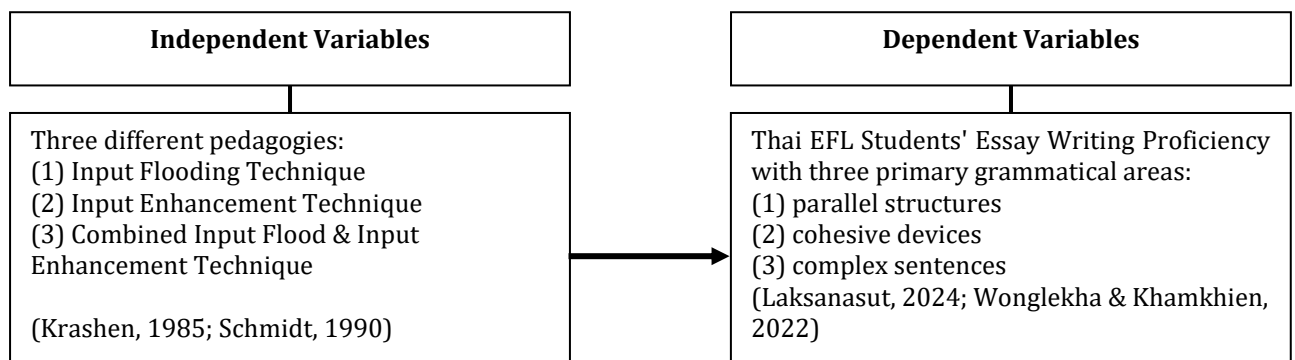
Input enhancement supplements input flooding by highlighting key linguistic features using boldface, underlining, or other visual cues (Susoy & Zarfaz, 2024). Aligned with Schmidt's Noticing Hypothesis, this technique helps students recognize and adopt complex syntax, cohesive devices, and grammatical structures essential for clear and coherent writing. Empirical studies have shown that enhanced input increases the likelihood of retention and application of target forms in student essays (Salih, 2023).

### **Objectives**

1. To examine the impact of input flooding on the essay writing proficiency of Thai EFL students.
2. To investigate the effects of input enhancement on EFL learners' essay writing.
3. To evaluate the combined effects of input flooding and input enhancement on improving academic writing performance.

### **Research framework**

While input flooding provides extensive exposure to linguistic structures, input enhancement ensures that learners consciously notice and internalize them. Given the systemic challenges in Thai EFL classrooms, a combined approach may offer a more effective means of improving students' writing proficiency. To illustrate the interaction between these theoretical concepts and their practical application, Figure 1 visually represents the role of input flooding and input enhancement in supporting EFL learners' essay writing.



**Figure 1** Research Framework

## Research methodology

### *Research Design*

This study employed a mixed-methods research approach, following an explanatory sequential design to examine the effects of input flooding and input enhancement on students' writing proficiency. The quantitative phase utilized a quasi-experimental pre-test/post-test design. Following the quantitative phase, a qualitative component involved focus group interviews to explore participants' perceptions of the instructional interventions and their impact on writing skills.

### *Population and Sample*

The population consisted of 426 EFL secondary-level students enrolled in the second semester of the academic year 2024 at a public secondary school in Chonburi, Thailand (The Office of the Secondary Education Service Area Chonburi - Rayong, 2024).

A purposive sampling method was used to select a public high school under the Chonburi Rayong Secondary Educational Service Area Office, chosen for its representative EFL student population and institutional support for pedagogical research. Cluster random sampling (Phomjui, 2020) was then applied to select three intact Grade 11 classrooms, each assigned to one of the three experimental groups. The final sample consisted of 100 students: Group A (Input Flooding): 35 students Group B (Input Enhancement): 32 students Group C (Combined Input Flood & Input Enhancement): 33 students

### *Research Instruments*

The instruments included input flooding and input enhancement materials, pre-test and post-test writing tasks, AI-based and human scoring, and focus group interviews.

#### 1. Input Flooding Materials

The input flooding technique was incorporated into the instructional materials to increase students' exposure to target grammatical structures through frequent and repetitive encounters in reading and writing activities. The input flooding materials included reading passages, model essays, and writing prompts that featured high-frequency occurrences of the target structures. These materials were carefully designed to immerse students in correct grammatical patterns without explicit correction. During the instructional sessions, students engaged with authentic academic texts, which repeatedly highlighted the use of parallelism, transitions, and complex syntax. The texts were selected to align with curriculum standards, ensuring relevance to students' academic and linguistic needs.

#### 2. Input Enhancement Materials

The input enhancement focused on explicitly drawing students' attention to key grammatical structures through visual modifications and interactive engagement. The input enhancement materials utilized bolding, underlining, and color-coding to highlight parallel structures, cohesive devices, and complex sentences within texts. Additionally, interactive digital tools were incorporated, allowing students to engage with enhanced texts dynamically, reinforcing their understanding of grammatical structures. This structured focus on noticing and awareness complemented the natural exposure approach of input flooding.

#### 3. Pre-Test and Post-Test (Essay Writing Tasks)

The pre-test and post-test assessments were designed to measure students' writing proficiency before and after exposure to input flooding and input enhancement strategies. These tasks served as a benchmark for evaluating students' progress in targeted grammatical areas and overall writing quality. Each student was required to write a 200-250 word academic essay on a standardized topic, such as "Advantages and Disadvantages of Online Learning." The task was conducted under controlled conditions, ensuring that students produced their essays independently without prior revision or external assistance. The essays were assessed based on three primary grammatical areas: (1) parallel structures, which focused on the consistency of sentence patterns; (2) cohesive devices, which measured the effectiveness of transitions and logical connections within the text; and (3) complex sentences, which evaluated students' ability to construct grammatically sophisticated sentences

#### 4. AI-Based Essay Scoring (ETS® e-rater) and Human Validation

To efficiently and consistently assess a large number of student essays, the study employed a hybrid scoring method, integrating AI-based evaluation with human validation. The ETS® e-rater, an advanced AI-driven grading tool, was utilized to analyze essays based on linguistic accuracy, cohesion, and lexical complexity. This automated system enabled efficient large-scale grading, ensuring objectivity and consistency in evaluation. Since AI-generated scores may not always account for contextual nuances, the study incorporated human calibration to enhance the reliability of scoring. A subset of 10 essays was double-scored by experienced native-speaker teachers alongside the AI system. Any major discrepancies between AI and human scores were identified, discussed, and adjusted to align the automated grading system with the study's rubric. Additionally, approximately 10% of all essays were randomly selected for manual rescoring to ensure the AI-generated results remained accurate and valid.

To establish scoring reliability, AI-generated scores were calibrated against human ratings by two experienced EFL instructors. Inter-rater consistency between AI and human scores was examined through score comparison and discussion of discrepancies. The alignment between automated and human evaluation supported the reliability of the scoring procedure for assessing linguistic features of student essays.

#### 5. Focus Group Interviews (FGIs)

To supplement the quantitative findings from the essay assessments, semi-structured focus group interviews (FGIs) were conducted to gain qualitative insights into students' learning experiences. A purposive sampling method was used to select 5 students from each instructional group, ensuring diverse perspectives from those who had experienced different learning strategies. The discussions were audio-recorded with participant consent and later transcribed verbatim for thematic analysis.

#### *Data collection*

The data collection process involved five key phases: baseline assessment, initial analysis of pre-test data, instructional interventions, post-test assessment, and focus group interviews. Each phase is detailed below.

##### 1. Baseline Assessment

To establish participants' initial writing proficiency, all students completed a pre-test essay before the instructional interventions. The pre-test was administered under standardized conditions, requiring students to write a 200–250-word academic essay on a predetermined topic. Both AI-based evaluation and teacher spot-checks were used to ensure accuracy and consistency in scoring.

##### 2. Initial Analysis of Pre-Survey Data

The pre-test results were analyzed using descriptive statistics to determine the participants' baseline proficiency levels. The overall mean score across the three groups was 12.18 (out of 30 points), with a standard deviation (S.D.) of 2.24, indicating moderate variability. The group-specific results were presented in Table 1.

**Table 1** *Initial Analysis of Pre-Test Data*

Group	N	Mean	(SD)
Group A (Input Flood)	35	12.45	2.14
Group B (Input Enhancement)	32	11.82	2.57
Group C (Combined)	33	12.27	2.02
<b>Overall</b>	<b>100</b>	<b>12.18</b>	<b>2.24</b>

The statistical summary in Table 1 indicated that all groups had relatively similar baseline writing proficiency. The slight variation in mean scores was unlikely to be statistically significant.

### 3. Instructional Interventions

The instructional phase spanned for 20 instructional hours. Each group received a distinct treatment based on the assigned instructional technique. Each session began with a brief teacher-led explanation of the day's objectives and relevant linguistic concepts. Students then participated in a series of activities, including reading comprehension, group discussions, and short writing exercises incorporating the target structures.

### 4. Post-Survey Assessment

After the intervention period, all participants completed a post-test essay under conditions identical to the pre-test. The post-test scores were compared to the pre-test results to assess the effectiveness of the interventions on students' writing skills.

### 5. Focus Group Interviews

Semi-structured focus group interviews were conducted to gather insights into students' experiences with the instructional interventions. A purposive sampling method was used to select five students from each group, ensuring diverse representation. The interviews were audio-recorded with participant consent, transcribed verbatim, and subjected to thematic analysis to identify recurring patterns and insights.

## *Data analysis*

### 1. Quantitative Analysis

The quantitative analysis involved descriptive statistics to calculate the mean scores, standard deviations, and ranges for each group's pre-test and post-test essay scores. Paired t-tests were conducted to compare pre- and post-test scores within each group, identifying significant improvements. To assess differences between groups, a one-way ANCOVA was performed, controlling for pre-test scores. This ensured that any variations in post-test performance were attributed to the interventions rather than initial proficiency differences.

In this study, essay writing proficiency was operationalized as students' ability to produce coherent academic essays demonstrating grammatical accuracy, effective use of cohesive devices, and appropriate use of complex sentence structures. While writing proficiency is a multidimensional construct, the present study focused on these linguistic dimensions as measurable indicators of writing development aligned with the instructional interventions.

### 2. Qualitative Analysis

The qualitative analysis applied thematic analysis to identify recurring patterns in the interview transcripts. After familiarization with the data, key statements were coded and grouped into broader themes. To enhance validity, triangulation was used by cross-referencing qualitative insights with quantitative results, ensuring consistency between participants' experiences and statistical outcomes.

Ethical approval for the study was obtained from the school administration. All participants and their guardians were informed of the study's objectives, and written consent was obtained prior to data collection. Participation was voluntary, and students were assured that their academic grades would not be affected by participation or performance in the study.

## **Findings**

The findings are presented according to the research questions, integrating quantitative results (pre-test and post-test scores, paired t-tests, and ANCOVA outcomes) with qualitative insights from the focus group interviews. Tables display the statistical results, while student statements provide direct qualitative evidence of their experiences and perceptions.

**Research Objective 1:** To examine the impact of input flooding on the essay writing proficiency of Thai EFL students.

The paired t-test results indicated that Group A (Input Flood) demonstrated a statistically significant improvement in writing proficiency. The mean score increased from 12.45 (S.D. = 2.14) in the pre-test to 18.17 (S.D. = 2.36) in the post-test, with a p-value of  $< .01$  as shown in Table 2.

**Table 2** *Group A (Input Flood) – Pre-test and Post-test Scores*

Group A	Mean	S.D.	p-value
Before engaging with the input flood	12.45	2.14	0.00*
After engaging with the input flood	18.17	2.36	

\* $p < .01$

Students in Group A reported that repeated exposure to target structures improved their implicit learning and grammatical accuracy. Seeing the same sentence patterns frequently helped them internalize grammatical forms, making them easier to apply in their essays.

**Examples of Student's Statement:**

"Seeing the same sentence patterns repeatedly helped me remember them better. I didn't have to think as hard when writing."

"I felt more comfortable using relative clauses because I saw them so often in the materials."

"The repetition made it easier to recognize grammar rules in context. I started applying them automatically."

However, some students found it harder to consciously identify specific structures due to the lack of visual emphasis. This suggested that while input flooding enhanced fluency, it was less effective in promoting explicit grammar awareness.

**Research Objective 2:** To investigate the effects of input enhancement on Thai EFL students' essay writing proficiency.

Group B (Input Enhancement) also demonstrated significant gains in writing proficiency. The paired t-test revealed an increase in mean scores from 11.82 (S.D. = 2.57) in the pre-test to 19.42 (S.D. = 2.18) in the post-test, with a p-value of  $< .01$  as shown in Table 3.

**Table 3** *Group B (Input Enhancement) - Pre-test and Post-test Scores*

Group B	Mean	S.D.	p-value
Before engaging with the input enhancement	11.82	2.57	0.00*
After engaging with the input enhancement	19.42	2.18	

\* $p < .01$

Students in Group B reported that the visual enhancement techniques (bolding, color coding, and underlining) significantly improved their conscious noticing of grammatical forms. They described how the visual cues helped them focus on specific structures and apply them more accurately in their essays.

**Examples of Student's Statement:**

"The color coding helped me focus on the grammar forms. I remembered to use more transitions."

"The highlighted parts made it easier to spot and apply complex sentences."

However, some students mentioned feeling overwhelmed by the visual cues, which occasionally distracted them from their overall writing quality. One student stated:

"Sometimes the colors were too much. I focused more on the bolded words than on my essay content."

**Research Objective 3:** To evaluate the combined effects of input flooding and input enhancement on improving Thai EFL students' essay writing proficiency.

Group C (Combined Input Flood and Input Enhancement) achieved the greatest improvement in essay writing proficiency. The paired t-test revealed an increase in mean scores from 12.27 (S.D. = 2.02) in the pre-test to 21.36 (S.D. = 1.97) in the post-test as shown in Table 4.

**Table 4** *Group C (Combined Input Flood and Input Enhancement) - Pre-test and Post-test Scores*

Group C	Mean	S.D.	p-value
Before engaging with the input flood and input enhancement	12.27	2.02	*0.00
After engaging with the input flood and input enhancement	21.36	1.97	

\*p < .01

Students in Group C reported that the combined intervention was the most effective, as it reinforced both implicit and explicit learning. The repeated exposure promoted fluency, while the visual cues improved grammatical accuracy.

#### Examples of Student's Statement:

*"The repetition helped me remember the structures, and the bold parts reminded me to use them correctly."*

*"The combined technique made my essays more organized. I used more transitions and complex sentences."*

Many students expressed greater confidence in their writing skills, attributing their improvements to the synergistic effect of the dual intervention.

#### Overall Comparison of Intervention Effects

The ANCOVA results confirmed that Group C significantly outperformed the other groups, even when controlling for pre-test scores ( $F(2, 96) = 9.82, p < .01, \text{partial } \eta^2 = 0.17$ ), indicating a moderate to large effect size as shown in Table 5.

**Table 5** *ANCOVA Results Comparing Post-test Scores Across Groups*

Source	SS	df	MS	F	p-value	Partial $\eta^2$
Pre-test (covariate)	42.15	1	42.15	8.21	< 0.1	0.08
Group (intervention)	98.64	2	49.32	9.82	< .01	0.17
Error	482.73	96	5.03			
<b>Total</b>	<b>623.52</b>	<b>99</b>				

The partial eta squared value ( $\eta^2 = 0.17$ ) indicates a moderate to large effect of instructional condition on post-test writing performance, suggesting that the combined input flooding and input enhancement approach had a meaningful pedagogical impact beyond statistical significance. The qualitative data aligned with the statistical results, indicating that the combined intervention was the most effective. Students in Group C reported the greatest improvements in grammar accuracy, essay organization, and overall confidence. Group B participants benefited from enhanced grammar awareness due to visual cues, while Group A participants improved in grammatical fluency but lacked explicit grammar awareness.

#### Discussion

The findings of this study provide significant insights into the impact of input flooding and input enhancement on students' writing proficiency. The improvement in writing fluency observed in the input flooding group aligns with Krashen's (1985) Input Hypothesis, which suggests that repeated exposure to comprehensible input promotes language acquisition. Studies by Farzaneh et al. (2024) and Al-Shammari & Sahiouni (2023) similarly found that input flooding facilitates the internalization of grammatical structures, leading to improved fluency. However, some students in this study struggled to explicitly recognize grammar patterns, indicating that exposure alone may not be sufficient for conscious learning. This aligns with Schmidt's (1990) Noticing Hypothesis, which argues

that conscious attention to linguistic features enhances acquisition. Students in the input enhancement group demonstrated significant improvements in grammatical accuracy, particularly in the use of cohesive devices and complex sentence structures. These results support Schmidt's (1990) claim that noticing linguistic features is critical for acquisition. The effectiveness of visual modifications, such as bolding and underlining, is consistent with findings by Celik (2024) and Susoy & Zarfsaz (2024), who reported that highlighting linguistic structures improves retention and application. However, some students found excessive visual emphasis overwhelming, occasionally leading to cognitive overload and distractions from overall writing composition. These findings suggest that while input enhancement is beneficial, careful implementation is necessary to avoid negative cognitive effects. The combined approach yielded the greatest improvements, indicating that input flooding and input enhancement complement each other. While repeated exposure strengthened fluency, visual emphasis facilitated grammatical accuracy. These findings align with research by Salih (2023) and Farzaneh et al. (2024), who found that integrating implicit and explicit instructional techniques enhances both fluency and syntactic complexity in writing. Similarly, Alwaheebi (2024) demonstrated that supplementing input-based instruction with enhancement techniques improves retention and grammatical accuracy. The superior performance of the combined approach aligns with VanPatten's (2004) Processing Instruction, which asserts that structured input must be both comprehensible and salient for effective learning. Smith (1993) similarly emphasized that enhanced input, when paired with frequent exposure, leads to deeper linguistic processing and improved retention. Swain and Lapkin's (1995) Output Hypothesis further supports this outcome, arguing that structured input interventions help learners identify and correct linguistic gaps, reinforcing their ability to produce accurate written output. The results of this study suggest that a blended approach, rather than relying solely on implicit or explicit instruction, provides a more effective means of improving writing proficiency in EFL learners. Moreover, the findings reinforce Schmidt's (1990) Noticing Hypothesis, as students in the combined group demonstrated the highest levels of both fluency and grammatical accuracy. The synergy between frequent exposure and explicit noticing allows learners to internalize structures more efficiently, a conclusion supported by Salih (2023). These results underscore the pedagogical value of integrating structured input-based techniques into EFL instruction, offering a comprehensive approach to improving writing proficiency.

Despite the positive outcomes, the findings do not fully account for all dimensions of writing development. Improvements were primarily observed in linguistic accuracy and structural complexity, while higher-level rhetorical skills such as argument development and critical stance were not directly examined. This suggests that input-based instruction, although effective for supporting linguistic resources, may need to be complemented by process-oriented or genre-based approaches to foster more advanced aspects of academic writing. Furthermore, the reliance on short-term post-test measures limits conclusions regarding the durability of learning gains.

## Recommendations

### Recommendations for Applying the Research Findings

1. Teachers should combine these techniques in EFL writing instruction to maximize students' fluency and grammatical accuracy.
2. Teaching materials should incorporate frequent exposure to target structures with visual enhancements to reinforce learning.
3. Teachers should receive professional development on effectively implementing these techniques to enhance students' essay writing skills.

### Recommendations for Future Research

1. Future research should examine the long-term effects of input flooding and input enhancement on writing proficiency.
2. Studies should explore how these techniques impact learners at various proficiency levels, from beginners to advanced students.
3. Further research should investigate the role of digital tools and AI-driven platforms in enhancing the effectiveness of these instructional methods.

## Conclusion

This study examined the individual and combined effects of input flooding and input enhancement on Thai EFL students' essay writing proficiency. The findings revealed that while both techniques significantly improved students' writing skills, the combination of the two produced the most substantial gains in fluency, grammatical accuracy, and overall organization. Input flooding facilitated the internalization of grammatical structures through repeated exposure, while input enhancement promoted conscious noticing and application of key linguistic forms. When used together, these approaches complemented each other, addressing both implicit and explicit aspects of language acquisition. The results support established language acquisition theories, such as Krashen's Input Hypothesis and Schmidt's Noticing Hypothesis, and underscore the pedagogical value of integrating structured input-based strategies into EFL writing instruction. Future research should investigate the long-term impact of these techniques across varying proficiency levels and explore the potential of digital tools to further enhance the effectiveness of input-based instruction.

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