

Systemic Functional Perspectives on Theme and Rheme in AI-Assisted EFL Writing

Atik Rokhayani¹, Rismiyanto², Slamet Utomo³, Kassymova Gulzhaina Kuralbayevna⁴, Celso P. Resueno, Jr.⁵

¹ Universitas Muria Kudus, Kudus, Indonesia; atik.rokhayani@umk.ac.id

² Universitas Muria Kudus, Kudus, Indonesia; rismiyanto@umk.ac.id

³ Universitas Muria Kudus, Kudus, Indonesia; slamet.utomo@umk.ac.id

⁴ Abai Kazakh National Pedagogical University, Kazakhstan; g.kassymova@abaiuniversity.edu.kz

⁵ Nueva Ecija University of Science and Technology, Philippines; celsoresueno1988@ineust.ph.education

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ABSTRACT

Artificial intelligence-assisted writing tools are increasingly used in EFL classrooms to support idea generation and text production. However, their contribution to discourse-level organization remains underexplored, particularly in relation to Theme–Rheme structures and thematic progression from a Systemic Functional Linguistics perspective. This study employed a qualitative descriptive design to examine Theme–Rheme organization in AI-assisted EFL narrative writing. The data consisted of 31 narrative texts produced by undergraduate English Education students using the Storybird platform. The texts were analyzed clause by clause using Halliday’s Systemic Functional Linguistics framework. Each clause was coded to identify topical, textual, and interpersonal Themes, as well as their role in shaping discourse organization. The analysis identified 520 Themes across the student texts. Topical Themes were dominant, accounting for 438 occurrences, followed by 73 textual Themes and 9 interpersonal Themes. The findings indicate that students mainly relied on unmarked topical Themes and subject–predicate structures to organize their narratives. Although this pattern supported clause-level clarity, the limited use of textual and interpersonal Themes suggests restricted thematic variation and limited control over discourse cohesion, stance, and rhetorical development. The findings show that AI-assisted writing can support idea generation but does not automatically develop students’ discourse-level competence. Students still require explicit instruction in Theme–Rheme organization and thematic progression to produce coherent and rhetorically effective texts. Integrating AI-based writing tools with SFL-informed pedagogy may help EFL learners move beyond grammatical accuracy toward stronger discourse organization.

Corresponding Author:

Atik Rokhayani

Universitas Muria Kudus, Kudus, Indonesia; atik.rokhayani@umk.ac.id

1. INTRODUCTION

The rapid integration of Artificial Intelligence (AI) in language pedagogy has significantly changed how students approach the writing process, especially in English as a Foreign Language (EFL) contexts (Sulistiyo, 2024; Tang, 2025). Platforms such as Storybird and Claude AI have emerged as key supports for ideation and story structuring, helping students overcome linguistic barriers while providing more personalized learning (Harahap & Dewi, 2025; Li & Wilson, 2025). While students generally show positive attitudes toward these tools for improving grammar and fluency, scholars remain concerned about their potential impact on critical thinking and the production of repetitive, generic sentence patterns (Pryma, Pelivan, Цобенко, & Zagrebena, 2025; Rafida, Suwandi, & Ananda, 2024; Safitri & Fithriani, 2024). Overall, previous studies consistently show that AI tools are beneficial for supporting writing processes at the level of idea generation and linguistic accuracy; however, these benefits are mostly discussed without a deeper analysis of how texts are organized beyond the sentence level.

Recent studies suggest that while AI-based tools are perceived as effective for academic writing (Hanura & Widiarti, 2025). There is an urgent need to balance technological efficiency with the development of critical writing skills (Zhou, 2025). A significant challenge in higher education is ensuring that students can generate well-organized discourse rather than just isolated, grammatically correct sentences (Ayoub, Joudi, Bou Saba, & Bou Saba, 2025). This indicates a central problem in EFL writing: students may produce grammatically acceptable sentences with AI support, yet still struggle to construct coherent, logically developed texts at the discourse level. From the perspective of Systemic Functional Linguistics (SFL), the Theme-Rheme structure is the primary mechanism for organizing meaning and ensuring logical progression (Tarigan & Zahiri, 2025). Through Theme-Rheme organization, writers manage how information is introduced, maintained, and developed across clauses, making it a key indicator of discourse competence.

However, many EFL students still struggle with thematic organization due to first-language (L1) transfer and limited exposure to authentic academic patterns (Ashadi & Triyono, 2023). As a result, their writing often shows limited variation in Theme usage and relies heavily on simple subject-predicate structures. This study addresses a critical gap by analyzing how the Storybird platform influences the thematic organization of narrative texts, combining technological innovation with the theoretical rigor of SFL (Guo & Zaini, 2024; Tajik, 2025). Although previous studies have explored AI in writing and thematic progression separately, there is still very limited research that integrates AI-assisted writing with a detailed SFL analysis of Theme-Rheme structures. In particular, it remains unclear how AI-supported writing influences the distribution and functional role of topical, textual, and interpersonal Themes in shaping discourse coherence.

The use of AI-based writing tools and functional linguistic analysis gives valuable information about the students' writing, especially the application of Storybird. The previous studies show that these tools increase engagement and creativity and assist students in developing the elements of a narrative, especially concerning thematic progression, a dominant feature of Systemic Functional Linguistics (SFL) (Abdullah, F., Tandiana, S. T., & Amelia, 2020; Tarigan, F. N., & Zahiri, 2025). These studies suggest that AI tools are effective in supporting narrative development, but they do not sufficiently explain how linguistic features operate at the discourse level. Thematic progression patterns, when used, can lead to a more coherent piece of writing as students who understand these patterns write better-structured narratives (Kraus, 2018). AI writing tools can also benefit writing in several ways by providing timely feedback, assisting students with the writing process, and helping students write (Graham, O., & Milan, 2025; Zhou, 2025). However, these advantages do not necessarily ensure that students develop the ability to control thematic variation or manage the flow of information effectively. Therefore, using AI writing tools focused on writing can assist EFL students in improving their narrative writing skills concerning grammatical accuracy and discourse. AI writing tools enhance both the efficiency and quality of writing (Losi et al., 2024). A case in point is for EFL students. Given the various benefits and difficulties presented in studies surrounding AI writing, the use of AI in teaching writing is clearly becoming necessary. AI writing tools show improvements in the efficiency, grammar, and organization of student writing.

Nevertheless, these improvements are predominantly observed at the micro-level of writing, and evidence regarding their impact on macro-level discourse organization remains insufficient. Based on the gaps identified above, this study is guided by the following research questions: (1) How are Theme and Rheme structures realized in AI-assisted narrative texts produced by EFL learners? (2) What types of Themes (topical, textual, and interpersonal) are most frequently used in these texts? (3) How do these thematic patterns reflect students' discourse competence in AI-supported writing contexts? Accordingly, this study aims to analyze the thematic organization of students' narrative writing produced through the Storybird platform using a Systemic Functional Linguistics framework. This study offers a novel contribution by integrating AI-assisted writing with clause-level SFL analysis, focusing on the distribution, dominance, and function of Theme–Rheme structures. Unlike previous studies that primarily emphasize perceptions or general writing improvement, this study provides a more detailed account of how discourse is constructed in AI-mediated environments. Furthermore, it contributes to both theory and pedagogy by highlighting the gap between AI-supported writing performance and students' ability to achieve coherent and well-structured discourse.

2. METHODS

This study employed a qualitative descriptive design focusing on the thematic analysis of AI-assisted student writing. This approach was chosen to better understand the linguistic choices made by students when interacting with AI-driven composition tools. A qualitative descriptive design is considered appropriate for this study because the primary objective is to provide a detailed and systematic description of linguistic features, particularly Theme–Rheme structures, as they naturally occur in students' texts. This design allows the researcher to capture authentic language use without manipulation, making it suitable for discourse-level analysis grounded in Systemic Functional Linguistics (SFL). Furthermore, this approach emphasizes interpretive depth rather than statistical generalization, which aligns with the study's focus on examining how meaning is constructed through thematic organization.

The participants were 31 undergraduate English Education majors at an Indonesian university enrolled in an English Grammar in Written Discourse course. This course focuses on developing both grammatical precision and discourse-level awareness. We used purposive sampling to select students who had completed a digital storytelling project using the Storybird platform. The use of purposive sampling ensured that all participants had relevant experience with AI-assisted writing, particularly in producing narrative texts through Storybird, which is essential for addressing the research objectives. The sampling criteria included: (1) students who were actively enrolled in the course during the data collection period, (2) students who completed the Storybird-based narrative writing task, and (3) students whose texts met the minimum length requirement for clause-level analysis. These criteria ensured that all selected participants had comparable exposure to both AI-assisted writing and discourse-focused instruction.

The primary data consisted of narrative texts produced through Storybird, which provides visual stimuli and interactive scaffolding to trigger ideas. All texts were anonymized to maintain research ethics. Prior to data collection, informed consent was obtained from all participants, who were notified about the purpose of the study, the use of their written texts for research. The study adhered to institutional ethical guidelines to ensure confidentiality and responsible data handling. In total, 31 narrative texts were collected and treated as the unit of analysis, with each text further segmented into clauses for detailed examination. Data were then analyzed using Halliday's (2004) SFL framework. Each text was systematically dissected clause-by-clause to identify the realization of topical, textual, and interpersonal themes, as well as the overall thematic progression. Halliday's (2004) Systemic Functional Linguistics framework was selected because it provides a comprehensive model for analyzing how meaning is organized at the clause and discourse levels through Theme–Rheme structures. This framework is widely recognized in discourse analysis and EFL writing research for its ability to reveal how writers construct coherence and logical progression in texts. Its emphasis on functional meaning-making makes it

particularly suitable for examining AI-assisted writing, where the focus is not only on grammatical accuracy but also on how ideas are structured and connected.

To ensure analytical transparency and rigor, the data analysis was conducted through the following steps:

1. **Data Preparation:** All narrative texts were compiled and converted into an analyzable format. Each text was carefully read to ensure completeness and consistency.
2. **Clause Segmentation:** The texts were segmented into clauses based on grammatical boundaries, as Theme–Rheme analysis operates at the clause level.
3. **Theme Identification:** Each clause was analyzed to identify the Theme, which was categorized as topical, textual, or interpersonal based on SFL principles.
4. **Rheme Identification:** The remaining part of the clause was identified as Rheme to examine how information develops within the clause.
5. **Coding and Classification:** All identified Themes were coded and tabulated to determine their frequency and distribution across the dataset.
6. **Pattern Analysis:** Thematic patterns were analyzed to identify dominant structures and variations in students' writing.
7. **Interpretation:** The findings were interpreted to understand how thematic choices reflect students' discourse competence in AI-assisted writing contexts.

To enhance the trustworthiness of the analysis, several validation techniques were employed. First, inter-rater reliability was conducted by involving a second researcher with expertise in Systemic Functional Linguistics to independently code a subset of the data. The coding results were then compared, and discrepancies were discussed until agreement was reached. Second, coding validation was applied through iterative checking, where the researcher revisited the data multiple times to ensure consistency in Theme classification. This process helped minimize subjectivity and strengthen the reliability of the findings. Third, an audit trail was maintained to document the analytical decisions, including coding categories and interpretation processes, ensuring transparency and replicability of the study.

3. FINDINGS AND DISCUSSION

This section presents empirical findings regarding thematic organization in narrative texts written by students using the Storybird platform. The data obtained was analyzed to identify the realization of Theme and Rheme structures in order to understand how EFL students build their discourse competence through AI technology. The following findings include the distribution of theme types and critical interpretations of these patterns from a Systemic Functional Linguistics (SFL) perspective.

3.1. Finding

The analysis of students' narrative texts written through the Storybird platform revealed a clear pattern in the organization of Theme and Rheme structures. Using the Systemic Functional Linguistics framework, the students' texts were analyzed clause by clause to identify the types of Themes used and how these Themes contributed to discourse organization. The results showed that the students employed three types of Themes: topical, textual, and interpersonal. Across the 31 narrative texts, a total of 520 Themes were identified. Of these, 438 were topical Themes, 73 were textual Themes, and only 9 were interpersonal Themes. This distribution indicates that topical Themes were the most dominant type used by the students in their AI-assisted writing.

The recapitulation of the analysis is described in the table and chart below:

Table 1. Type of Theme

| No | Types of Theme | | |
|-------|----------------|---------|---------------|
| | Topical | Textual | Interpersonal |
| 1 | 8 | 4 | |
| 2 | 20 | | 1 |
| 3 | 10 | | |
| 4 | 10 | | |
| 5 | 15 | 3 | 1 |
| 6 | 12 | 7 | |
| 7 | 27 | 3 | 1 |
| 8 | 12 | 2 | |
| 9 | 15 | 2 | |
| 10 | 11 | 1 | |
| 11 | 18 | 3 | 2 |
| 12 | 15 | 2 | |
| 13 | 10 | | |
| 14 | 7 | 4 | |
| 15 | 10 | 3 | |
| 16 | 11 | 3 | 1 |
| 17 | 18 | | |
| 18 | 13 | 1 | 1 |
| 19 | 14 | 3 | |
| 20 | 10 | 2 | |
| 21 | 21 | 6 | |
| 22 | 12 | | |
| 23 | 37 | 6 | 2 |
| 24 | 10 | | |
| 25 | 19 | 3 | |
| 26 | 12 | 2 | |
| 27 | 10 | 2 | |
| 28 | 8 | 2 | |
| 29 | 15 | 1 | |
| 30 | 16 | 1 | |
| 31 | 12 | 7 | |
| Total | 438 | 73 | 9 |

Based on the data presented in the table above, it can be seen that each component plays an interconnected role in supporting the process being described. This information serves as a basis for understanding the flow or relationship between the parts more clearly. To further clarify the explanation, Diagram 1 is presented below to visually illustrate the connection between these elements.

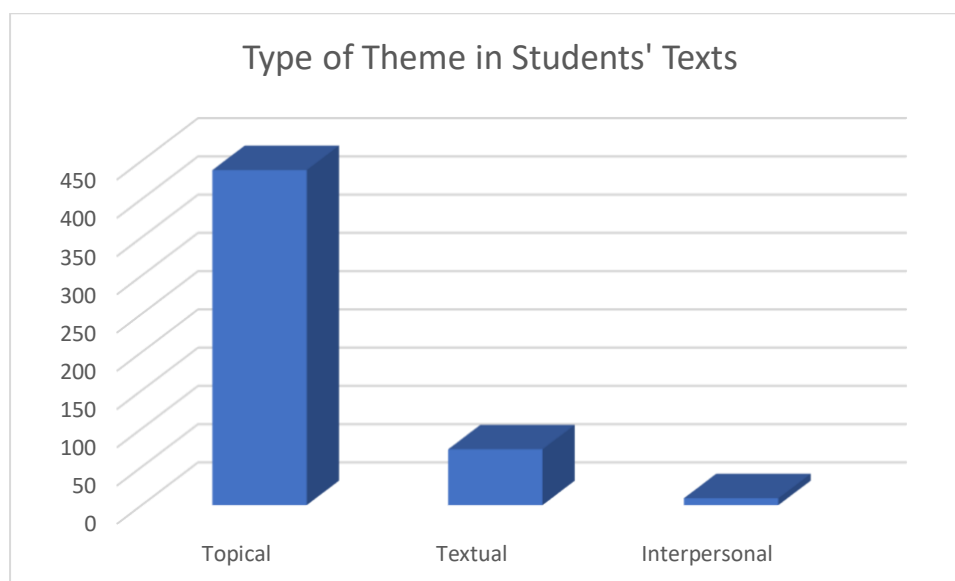


Diagram 1. Type of Theme in Students' Texts

The dominance of topical Themes suggests that students tended to organize their narratives by placing participants, objects, or events at the start of their clauses. In most cases, these topical Themes appeared in unmarked forms, meaning that the grammatical subject of the clause also functioned as the Theme. This pattern reflects students' preference for direct and straightforward clause construction. For example, students frequently began clauses with characters, pronouns, or concrete nouns before developing the message in the Rheme. Such organization helped them produce clear and understandable sentences, especially in narrative writing, where characters and events are central to meaning development.

However, the high frequency of topical Themes also shows that students' writing remained relatively simple in terms of thematic variation. Although the use of topical Themes supported clarity, excessive reliance on this pattern may limit the development of more complex discourse organization. The students generally followed a subject–predicate structure, which made their writing easy to follow but less varied rhetorically. This indicates that the AI-assisted writing environment helped students generate content, but it did not automatically encourage them to manipulate Theme–Rheme structures in more advanced ways.

Textual Themes appeared 73 times in the students' texts. These Themes were mainly realized through conjunctions and linking expressions such as *and*, *then*, *but*, and other cohesive markers. The presence of textual Themes shows that students attempted to connect ideas and maintain the flow of events in their narratives. Textual Themes helped them sequence actions, signal contrast, and connect one clause to another. Nevertheless, the proportion of textual Themes was much lower than that of topical Themes. This suggests that although students used some cohesive devices, their control of textual organization was still limited. The narratives were generally connected, but the cohesion was often basic and depended on simple connectors rather than more varied discourse strategies.

Interpersonal Themes were the least frequently used, with only 9 occurrences across the entire dataset. This finding indicates that students rarely used language to express stance, judgment, probability, emphasis, or direct interaction with readers. The limited use of interpersonal Themes suggests that students' narratives focused more on reporting events than on expressing evaluation or personal positioning. In other words, students were able to tell stories, but they showed limited ability to enrich their writing with interpersonal meaning. This may reflect their developing discourse competence, particularly in managing the relationship between writer, text, and reader.

Overall, the findings show that AI-assisted writing through Storybird supported students in producing narrative texts with clear clause-level organization. The platform appeared to help students generate ideas and structure basic narrative content. However, the Theme–Rheme analysis revealed that students' discourse organization remained dominated by simple and predictable thematic patterns. The strong preference for topical Themes, the moderate use of textual Themes, and the very limited use of interpersonal Themes suggest that students still need explicit instruction in thematic variation and discourse organization.

These findings indicate that AI tools can support creativity and idea generation, but they do not automatically develop students' discourse-level competence. Students may produce grammatically acceptable and meaningful clauses, yet still struggle to create texts with rich cohesion, varied thematic progression, and stronger rhetorical control. Therefore, the findings highlight the importance of combining AI-assisted writing activities with explicit instruction in Systemic Functional Linguistics, especially Theme–Rheme organization. Such instruction can help students move beyond basic sentence construction and develop more coherent, cohesive, and rhetorically effective writing.

The results demonstrate that Topical Themes, particularly unmarked themes, emerge as the primary structural anchor for EFL learners. Students predominantly chose grammatical subjects as the "point of departure" for their messages, indicating a tendency to organize narratives in a direct and sequential mode. While Textual Themes (14.04%) were employed to link ideas through conjunctions like *and*, *then*, or *but*, the minimal use of Interpersonal Themes (1.73%) suggests a limited focus on projecting stance or interaction within the text. This reflects a significant reliance on basic subject-predicate patterns despite the interactive scaffolding provided by the AI tool.

3.2. Discussion

The integration of AI platforms like Storybird has been shown to increase student motivation and facilitate idea generation (Harahap & Dewi, 2025; López-Martínez, 2023). Rather than reiterating general benefits of AI, this discussion focuses on how these tools influence discourse organization from an SFL perspective. However, these findings indicate that AI tools do not intrinsically encourage the use of varied or complex Theme-Rheme relationships. Students often prioritize content production over sophisticated discourse organization, resulting in texts that are grammatically correct but structurally rigid. This suggests that AI-assisted environments may shift learners' attention toward fluency and output generation, while leaving higher-order discourse control underdeveloped. For instance, the frequent use of unmarked topical themes (e.g., "His stories (Theme) are always exciting...") provides clarity but remains at a simple functional level. From a Systemic Functional Linguistics perspective, this dominance of unmarked topical Themes reflects a reliance on experiential meaning (ideational metafunction), with limited engagement in interpersonal and textual meta functions. This imbalance indicates that students are able to represent content but have difficulty managing interactional stance and textual cohesion, which are essential components of advanced discourse competence.

These results are consistent with previous research suggesting that EFL writers often struggle to achieve thematic coherence without explicit instruction. The tendency to rely on basic patterns is supported by (Nguyen & Nguyen, 2025). Who found that students lack the flexibility to manipulate theme structures without specific training. Furthermore, (Mustofa & Kurniawan, 2023) note that a heavy reliance on topical themes can limit the development of more advanced thematic strategies. Similar patterns have also been reported in broader international contexts, where EFL learners tend to overuse subject-initial structures and show limited variation in thematic progression, particularly in AI-supported or technology-mediated writing environments. Studies in diverse educational settings indicate that while digital tools support writing fluency, they do not automatically foster discourse-level sophistication without explicit linguistic guidance.

This study's findings also align with the analysis of second language learners' texts by (Rizki, Kurniawati, Al Usrah, & Hanif, 2023), which frequently show a dependence on linear structures, as well as (Haji, 2024) work on the challenges of achieving complex thematic variation in EFL writing. While AI tools effectively support independent writing (Faizhal, Ilham, Irwandi, & Rahmaniah, 2025), maintaining text coherence in AI-supported environments still requires a robust linguistic framework (Trần, 2024). These findings suggest that AI functions as a facilitator of writing production but not as a mechanism for developing discourse organization skills. The dichotomy observed here—between AI-triggered creativity and structural rigidity—underscores that digital autonomy does not automatically equate to linguistic maturity at the discourse level. One possible explanation for the low occurrence of interpersonal Themes is that AI-generated or AI-supported writing tends to prioritize informational clarity over evaluative or interactional meaning.

As a result, students may not be encouraged to express stance, modality, or engagement explicitly. In addition, instructional practices that focus more on content completion than discourse awareness may further contribute to the limited use of interpersonal elements in students' writing. Therefore, moving students from mere grammatical accuracy to higher discourse competence requires the synergy of AI technology and explicit SFL-based instruction (Tajik, 2025; Tarigan & Zahir, 2025). The synergy between AI technology and explicit linguistic training is crucial for developing students' ability to manage discourse movement logically and professionally. This finding reinforces the importance of integrating metafunctional awareness into writing pedagogy, particularly in helping students balance ideational, interpersonal, and textual meanings.

From the result of the students' text, it can be seen that the students can use the theme and rheme correctly. Example of the student's clause:

His stories are always exciting and full of adventure.

| | |
|-----------------|--------------|
| Unmarked | |
| Topical | |
| Theme | Rheme |

While this example illustrates accurate Theme–Rheme realization, the key issue lies not in correctness but in the limited variation and functional use of thematic structures across the text. From the given example, the writer has clarity and simplicity as one of his foremost considerations in information packaging. This theme structure allows the reader to follow the message. These are common in narratives and descriptions written by L2 learners when they produce judgment or generalization. However, such patterns, when overused, may restrict the development of more complex rhetorical structures and reduce the overall effectiveness of discourse progression.

But now I feel brave

| | | |
|-----------------|----------------|--------------|
| Unmarked | | |
| Textual | Topical | Rheme |
| Theme | | |

Rather than focusing on individual examples, it is more important to observe the overall pattern that textual and interpersonal Themes are significantly underrepresented.

| | | |
|----------------------|----------------|---|
| Perhaps | they | bring happiness that no gift can replace. |
| Modal | | |
| Interpersonal | Topical | |
| Theme | | Rheme |

The minimal use of interpersonal Themes suggests that students have limited control over expressing evaluation, probability, or personal stance, which are important for more advanced and engaging writing. Overall, this discussion highlights the dichotomy between AI-triggered creativity and structural rigidity in text organization. Although Storybird functions as an effective tool for triggering ideas and emotional engagement (Harahap & Dewi, 2025; Rafida et al., 2024), the dominance of unvaried topical themes indicates that students' digital autonomy is not yet fully aligned with linguistic maturity at the discourse level.

This implies that teachers should not rely solely on AI tools but need to incorporate explicit instruction on thematic variation and discourse organization. Activities that focus on rewriting, Theme manipulation, and awareness of metafunctions can help students develop more flexible and coherent writing. Therefore, the integration of explicit functional instructions remains a crucial element to ensure that the use of AI technology does not merely produce grammatically correct texts, but also texts with a logical, coherent flow of information and professional rhetorical power. From a theoretical perspective, this study contributes to the understanding of how SFL can be applied to evaluate AI-assisted writing, while from a pedagogical perspective, it highlights the need for a balanced approach that combines technological tools with discourse-based instruction.

4. CONCLUSION

This study concludes that AI-assisted writing through Storybird supports EFL students in generating narrative ideas and producing structurally clear clauses, but it does not automatically lead to advanced discourse organization. The main finding shows that students relied heavily on topical Themes, with 438 occurrences out of 520 total Themes, while textual Themes appeared 73 times and interpersonal Themes only 9 times. This pattern indicates that students mainly organized their writing through simple subject–predicate structures, which helped maintain clause-level clarity but limited thematic variation, cohesion, stance expression, and rhetorical development. The study is limited by its small sample of 31 students from a single institutional context, its exclusive focus on narrative texts, and the qualitative nature of Theme–Rheme analysis, which may involve interpretive subjectivity despite validation procedures. Future research should involve larger and more diverse participants, examine different genres such as argumentative and academic writing, and apply longitudinal or mixed-method designs to investigate how AI tools combined with explicit SFL-based instruction can improve students' thematic progression and discourse competence over time.

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