



Deep Learning-Based Genre Pedagogy in Language Education: Students' Perceived Argumentative Writing Competence and Self-Regulated Learning

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ABSTRACT

Deep learning-based genre pedagogy combines explicit genre instruction with engagement, reflection, feedback, and strategic learning to support writing. This small-scale exploratory study examined relationships among deep learning-based genre pedagogy, students perceived argumentative writing competence, and self-regulated learning. Data were collected from 20 higher-education students using a questionnaire with Likert-scale and open-ended items. The measures demonstrated high internal consistency for argumentative writing competence ($\alpha = .934$), genre pedagogy ($\alpha = .940$), and self-regulated learning ($\alpha = .944$). Students reported perceptions of genre pedagogy ($M = 3.83$), writing competence ($M = 3.72$), and self-regulated learning ($M = 4.01$). Spearman analysis showed positive associations between genre pedagogy and writing competence ($\rho = .868$) and self-regulated learning ($\rho = .784$), both $p < .001$.

INTRODUCTION

Argumentative writing is an important part of academic literacy in higher education because it requires students to do more than simply express ideas in written form. Students need to develop a clear position, support it with relevant reasons and evidence, organize ideas logically, and present arguments in a way that is appropriate for an academic audience. For students who write in English as a second or foreign language, these demands can be particularly challenging because they must manage linguistic accuracy, rhetorical organization, reasoning, and audience awareness at the same time. Recent research has therefore emphasized that L2 argumentative writing is a multidimensional activity that involves not only language knowledge but also argument structure, critical thinking, and strategic control of the writing process (Amini Farsani et al., 2025).

One of the main difficulties students experience in argumentative writing is turning ideas into a coherent and convincing text. A student may understand the topic but still struggle to organize claims, reasons, supporting evidence, and conclusions effectively. Writing also requires learners to decide what information is relevant, how arguments should be sequenced, and how linguistic choices can strengthen the message. Almashour and Davies (2023) showed that university EFL learners use a range of cognitive, metacognitive, affective, and social strategies when completing argumentative writing tasks. Their findings suggest that successful argumentative writing depends not only on what students know about language, but also on how they plan, monitor, and manage their writing.

Genre-based pedagogy offers one possible way to address these challenges. Rather than expecting students to discover the conventions of academic writing independently, genre-based instruction makes the structure, purpose, and language features of a text more visible. Through the use of model texts, guided analysis, teacher support, collaborative construction, and independent writing, students are gradually introduced to the rhetorical expectations of a particular genre. In argumentative writing, this approach can help learners understand how claims are developed, how reasons are supported, and how different parts of a text work together to achieve a communicative purpose. Research on process-genre instruction has shown that combining explicit genre knowledge with planning, drafting, feedback, and revision can support students' writing development and their understanding of the writing process (Wardhana, 2022).

The value of genre-based instruction is not limited to textual organization. It can also encourage learners to become more aware of how academic writing works and how they can manage the writing process more independently. Truong (2022), for example, found that process-genre instruction supported not only EFL students' writing performance but also aspects of writing self-efficacy and writing autonomy. This is particularly relevant in argumentative writing, where students need to make decisions about structure, evidence, wording, and revision rather than simply reproduce a fixed pattern.

The potential of genre-based pedagogy may become even stronger when it is combined with principles of deep learning in education. In this context, deep learning refers to meaningful and reflective learning rather than artificial intelligence or machine learning. It emphasizes understanding ideas in depth, connecting new knowledge with prior knowledge, applying concepts in different situations, and reflecting on the learning process. In the Indonesian educational context, deep learning has also been promoted as an approach that encourages students to move beyond surface memorization toward deeper understanding and meaningful application of knowledge (Kementerian Pendidikan Dasar dan Menengah Republik Indonesia, 2025).

Applied to writing instruction, deep learning means that students are not only introduced to the formal structure of an argumentative text but are also encouraged to understand why particular rhetorical choices are made, how ideas are connected, and how knowledge of genre can be applied to new writing situations. In this study, deep learning-based genre pedagogy refers to a learning experience in which students engage with model texts, examine argumentative structures, reflect on how arguments are built, receive feedback, and apply genre knowledge in increasingly independent ways. This orientation is consistent with research showing that process-genre instruction can support higher-order thinking by engaging learners in analysis, evaluation, organization, and knowledge construction during writing (Wardhana, 2022).

However, knowing the structure of a genre is not enough to ensure effective writing. Students also need to regulate their own learning. Self-regulated learning refers to the ability of learners to actively manage their cognition, motivation, behavior, and learning strategies in order to achieve specific goals. In writing, this may involve setting goals, planning ideas, monitoring progress, managing time, seeking feedback, evaluating drafts, and making revisions when needed. Wang et al. (2023) showed that self-regulated writing is multidimensional and includes cognitive, metacognitive, motivational, and social-behavioral components. This suggests that writing competence is closely connected to students' ability to manage the writing process independently.

Recent studies have also shown that self-regulation is relevant to writing development in higher education. Shen and Bai (2024) found that strategy-based instruction improved both EFL students' writing performance and their use of self-regulated writing strategies. Similarly, Zhang and Zhang (2024) reported meaningful relationships among writing self-efficacy, self-regulated writing strategies, and writing achievement. These findings indicate that students who are better able to plan, monitor, and evaluate their writing are also more likely to experience stronger development in academic writing. The connection between self-regulated learning and argumentative writing is also relevant in the Indonesian context. Amalia et al. (2023) found a relationship between students' self-regulated learning strategies and their argumentative writing ability. This finding is important because it suggests that students' success in argumentative writing cannot be explained solely by language proficiency. Their ability to manage learning strategies and take responsibility for the writing process also matters.

Although previous studies have examined genre-based instruction, process-genre pedagogy, writing performance, self-efficacy, and self-regulated learning, several gaps remain. Many studies have focused on intervention-based designs and objective writing scores, while others have examined self-regulation mainly in relation to writing achievement or strategy use (Truong, 2022; Shen & Bai, 2024; Zhang & Zhang, 2024). Comparatively less attention has been given to how students' perceptions of a deep learning-oriented genre pedagogy are associated simultaneously with their perceived argumentative writing competence and self-regulated learning. This distinction is important because perceived writing competence reflects how students evaluate their own ability to understand and perform argumentative writing tasks. It should not be treated as identical to objectively assessed writing performance, but it remains meaningful because students' beliefs about their competence can influence engagement, persistence, and willingness to use learning strategies. Examining this construct alongside self-regulated learning therefore provides a more complete picture of how students experience genre-oriented writing instruction.

Accordingly, this study investigates the relationship between deep learning-based genre pedagogy, students' perceived argumentative writing competence, and self-regulated learning among university students. Rather than making a causal claim, the study adopts an exploratory correlational perspective to examine whether students who report stronger experiences of deep learning-based genre pedagogy also report stronger perceived argumentative writing competence and higher levels of self-regulated learning. In doing so, the study provides preliminary evidence that may support the development of more structured and reflective approaches to argumentative writing instruction in higher education. The study addresses three research questions. First, it examines students' levels of perceived argumentative writing competence, their perceptions of deep learning-based genre pedagogy, and their self-regulated learning. Second, it investigates whether deep learning-based genre pedagogy is significantly associated with students' perceived argumentative writing competence. Third, it explores whether deep learning-based genre pedagogy is significantly associated with students' self-regulated learning.

LITERATURE REVIEW

Deep Learning-Based Genre Pedagogy

Genre-based pedagogy helps students understand how texts are organized according to their communicative purposes, rhetorical structures, and linguistic features. In argumentative writing, this approach is useful because students need to understand how claims, reasons, evidence, and conclusions are connected within a coherent text. Recent reviews show that genre-based instruction has been widely applied in ESL/EFL writing and is increasingly linked with learner engagement, self-efficacy, and writing awareness (Zhai & Razali, 2023; Liu et al., 2024). In this study, genre pedagogy is combined with the principle of deep learning, understood as meaningful, reflective, and conceptually engaged learning. Rather than memorizing text structures, students are expected to analyze model texts, understand why rhetorical choices are made, apply genre knowledge to new writing situations, and reflect on their learning. This

orientation is consistent with research showing that genre-based instruction can strengthen genre awareness and support more meaningful engagement with academic writing (Thaksanan & Chaturongakul, 2023).

Perceived Argumentative Writing Competence

Perceived argumentative writing competence refers to students' judgments about their ability to understand and perform argumentative writing tasks. It differs from objectively assessed writing performance because it reflects self-evaluation rather than actual scores obtained from a writing test. Nevertheless, perceived competence is important because students who believe they understand how argumentative texts work may be more willing to participate, persist, and apply writing strategies. Genre-specific beliefs have been shown to be relevant in L2 writing. Zhang et al. (2023) found that genre-based writing self-efficacy can be measured reliably and is related to writing quality. Similarly, Abdel Latif et al. (2024) reported that genre-based instruction contributed not only to writing performance but also to students' writing self-efficacy and self-concept. These findings suggest that clearer understanding of genre expectations may strengthen students' perceptions of their own writing competence.

Self-Regulated Learning in Writing

Self-regulated learning refers to students' ability to plan, monitor, manage, and evaluate their own learning. In writing, this includes setting goals, organizing ideas, managing time, monitoring progress, responding to feedback, and revising drafts. These processes are particularly important in academic writing because students are required to manage complex tasks independently. Recent studies indicate that self-regulation is closely related to writing development. Robillos (2023) found that genre-based instruction supported both writing skills and students' awareness of self-regulatory processes. Anggraeni et al. (2025) also showed that self-regulated learning-based instruction improved academic writing skills and encouraged students to plan and monitor their writing more effectively. These findings suggest that structured and reflective writing instruction can support greater learner independence.

Relationship among the Variables

Deep learning-based genre pedagogy may be associated with perceived argumentative writing competence because explicit genre instruction helps students understand what constitutes effective argumentative writing. When students analyze models, identify rhetorical structures, receive feedback, and apply genre knowledge independently, they may develop stronger perceptions of their ability to write argumentative texts. The same instructional experience may also support self-regulated learning. Genre analysis, guided practice, feedback, and reflection provide opportunities for students to plan, monitor, evaluate, and regulate their writing process. Therefore, students who perceive stronger engagement with deep learning-based genre pedagogy may also report higher levels of self-regulated learning.

Based on this theoretical foundation, the following hypotheses are proposed:

H1: *Deep learning-based genre pedagogy is positively and significantly associated with students' perceived argumentative writing competence.*

H2: *Deep learning-based genre pedagogy is positively and significantly associated with students' self-regulated learning.*

METHODOLOGY

Research Design

This study employed a quantitative, cross-sectional correlational design to examine the relationships between students' perceptions of deep learning-based genre pedagogy, perceived argumentative writing competence, and self-regulated learning. A correlational design was appropriate because the study aimed to identify the strength and direction of associations among naturally observed variables without manipulating instructional conditions or assigning participants to experimental groups. This approach is consistent with quantitative research in which measurable constructs are examined statistically within a defined population or learning context (Creswell & Creswell, 2023). The study was positioned as a small-scale exploratory investigation. Accordingly, the findings were intended to provide preliminary evidence about relationships among the three constructs rather than to establish causal effects or make broad population-level generalizations.

Participants

The final dataset consisted of 20 university students who had experience learning English and completing argumentative writing activities. Fifteen participants were female and five were male. Their ages ranged from 20 to 32 years, with a mean age of 22.30 years. Nineteen participants were enrolled at the diploma or undergraduate level, while one participant was studying at the postgraduate level. Participants also varied in the length of time they had studied English. Seven reported less than three years of English learning experience, four reported three to five years, four reported six to ten years, and five reported more than ten years. This variation provided a small but diverse learner profile for exploring perceptions of argumentative writing and self-regulated learning. Because the sample was limited to 20 respondents, it was treated as a context-specific exploratory sample rather than a statistically representative sample of university EFL learners. Recent survey-reporting guidance emphasizes that small local educational surveys may still provide useful evidence when the population, constructs, instrument, administration procedure, and limitations are clearly reported (Hill et al., 2024; Wilson et al., 2024).

Instrument

Data were collected through a structured online questionnaire consisting of demographic questions, 21 Likert-scale statements, and two open-ended questions. The Likert-scale items used a five-point response format ranging from 1 = strongly disagree to 5 = strongly agree. Five-point Likert formats are commonly used to capture ordered differences in respondents' attitudes, perceptions, and self-reported behaviors while retaining a neutral midpoint (Stefana et al., 2024). For the main statistical analysis, 18 items were organized into three constructs based on their conceptual content.

Table 1. Constructs, Number of Items, and Main Indicators

Construct	Items	Main indicators
Perceived Argumentative Writing Competence	3	Understanding the purpose of argumentative texts, recognizing argumentative structure, and distinguishing claims, reasons, and supporting evidence
Deep Learning-Based Genre Pedagogy	6	Model texts, systematic learning stages, guidance and feedback, conceptual understanding, connections with prior knowledge or real contexts, and reflection
Self-Regulated Learning	9	Goal setting, planning, strategy selection, monitoring, problem solving, feedback use, self-evaluation, identifying weaknesses, and using previous writing experience

The three remaining Likert items addressed students' perceived learning outcomes, including writing confidence, learner independence, and deeper understanding of the writing process. These items were retained for descriptive interpretation but were not included in the two primary correlational tests because they represented broader perceived outcomes rather than the three core constructs specified in the conceptual framework. The questionnaire also included two open-ended questions asking students to identify the aspect of genre-based learning that most supported their argumentative writing and the main difficulty they experienced when writing argumentative texts. These responses were used as supplementary contextual evidence, rather than as a separate qualitative research strand.

Data Scoring and Reliability

All Likert responses were coded numerically from 1 to 5, with higher scores indicating stronger agreement. Because all statements were positively worded, reverse scoring was not required. A composite score for each main construct was calculated by averaging the relevant item scores for each participant. Using composite scores enabled each multidimensional construct to be represented by a single interpretable value while retaining the contribution of its individual indicators. Internal consistency was assessed using Cronbach's alpha before examining relationships among the variables. Reporting internal consistency is important in survey-based research because it provides evidence about whether

items assigned to the same construct operate coherently within the study sample (Hill et al., 2024; Wilson et al., 2024). Given the small sample size, the reliability coefficients were interpreted as evidence of internal consistency within this particular sample, rather than as evidence that the questionnaire had been comprehensively validated for wider populations.

Data Analysis

The analysis was conducted in three stages. First, descriptive statistics were calculated to summarize participant characteristics and the overall levels of the three main constructs. Means and standard deviations were reported for perceived argumentative writing competence, deep learning-based genre pedagogy, and self-regulated learning.

Second, Cronbach's alpha was calculated for each construct to examine internal consistency. The analysis yielded high reliability coefficients for perceived argumentative writing competence, deep learning-based genre pedagogy, and self-regulated learning. The exact coefficients are reported in the Results section. Third, Spearman's rank-order correlation coefficient (ρ) was used as the primary inferential analysis to examine the two hypothesized relationships:

H1: *Deep learning-based genre pedagogy is positively associated with students' perceived argumentative writing competence.*

H2: *Deep learning-based genre pedagogy is positively associated with students' self-regulated learning.*

Spearman's rho was selected because the original responses were derived from ordered Likert categories and the study involved a relatively small sample. Spearman correlation is a non-parametric measure that evaluates the strength and direction of a monotonic association using ranked observations, making it appropriate for ordinal data and situations in which conventional parametric assumptions may be difficult to justify (Ahmed, 2025). Statistical significance was evaluated at $p < .05$, and both the magnitude and direction of the correlation coefficients were considered when interpreting the findings. Importantly, statistically significant correlations were interpreted as associations rather than causal effects, since correlation alone cannot establish that one variable causes changes in another (Ahmed, 2025). The two open-ended responses were reviewed separately and grouped according to recurring ideas across participants. These responses were used primarily to contextualize the quantitative findings for example, by identifying commonly reported instructional supports or writing difficulties rather than to claim a full qualitative thematic analysis.

Data Integrity and Ethical Considerations

The dataset was screened before analysis to ensure that all 20 respondents had completed the relevant questionnaire items. The dataset contained demographic information but no direct personal identifiers such as names or identification numbers. Responses were therefore analyzed at the aggregate level. Because this study involves human participants, the final manuscript should explicitly state the actual consent procedure and institutional ethical approval or exemption, if applicable. These details should reflect what was genuinely implemented during data collection and should not be added retrospectively without supporting documentation.

RESEARCH RESULTS

Respondent Characteristics

A total of 20 university students completed the questionnaire. The majority of participants were female (75.0%), while 25.0% were male. Participants ranged in age from 20 to 32 years, with a mean age of 22.30 years ($SD = 2.62$). Most participants were enrolled at the diploma or undergraduate level (95.0%), while one participant (5.0%) was enrolled at the postgraduate level. The participants also differed in their length of English learning experience. Seven students (35.0%) reported studying English for less than three years, four (20.0%) for three to five years, four (20.0%) for six to ten years, and five (25.0%) for more than ten years.

Table 2. Participant Characteristics

Characteristic	Category	n	%
Gender	Female	15	75.0
	Male	5	25.0
Educational level	Diploma/Undergraduate	19	95.0
	Postgraduate	1	5.0
English learning experience	Less than 3 years	7	35.0
	3–5 years	4	20.0
	6–10 years	4	20.0
	More than 10 years	5	25.0

These characteristics indicate that the sample consisted primarily of undergraduate-level students while representing varying levels of experience in learning English.

Descriptive Statistics and Internal Consistency

Descriptive statistics were calculated for the three main constructs: perceived argumentative writing competence, deep learning-based genre pedagogy, and self-regulated learning. As presented in Table 2, students reported relatively positive perceptions across all three constructs. Self-regulated learning obtained the highest mean score ($M = 4.01$, $SD = 0.65$), followed by deep learning-based genre pedagogy ($M = 3.83$, $SD = 0.75$) and perceived argumentative writing competence ($M = 3.72$, $SD = 0.77$).

Table 3. Descriptive Statistics and Reliability of the Main Constructs

Construct	Items	M	SD	Minimum	Maximum	Cronbach's α
Perceived Argumentative Writing Competence	3	3.72	0.77	2.00	5.00	.934
Deep Learning-Based Genre Pedagogy	6	3.83	0.75	2.00	5.00	.940
Self-Regulated Learning	9	4.01	0.65	2.78	5.00	.944

All three scales demonstrated high internal consistency in the present sample, with Cronbach's alpha coefficients ranging from .934 to .944. These values indicate that the items within each construct showed a high degree of consistency. However, given the small sample size, these coefficients should be interpreted as sample-specific reliability evidence rather than as comprehensive validation of the instrument. The three supplementary items concerning perceived learning outcomes also showed generally positive responses ($M = 3.90$, $SD = 0.71$). These items reflected students' perceptions that genre-based learning supported writing confidence, independent learning, and a deeper understanding of the writing process.

Relationship Between Deep Learning-Based Genre Pedagogy and Perceived Argumentative Writing Competence

Spearman's rank-order correlation was conducted to examine the relationship between students' perceptions of deep learning-based genre pedagogy and their perceived argumentative writing competence. The analysis revealed a strong positive and statistically significant correlation, $\rho = .868$, $p < .001$. This result indicates that students who reported stronger experiences of deep learning-based genre pedagogy also tended to report higher levels of perceived argumentative writing competence.

Table 4. Spearman Correlations Among the Main Constructs

Relationship	Spearman's ρ	p	Interpretation
Deep Learning-Based Genre Pedagogy $\leftrightarrow$ Perceived Argumentative Writing Competence	.868	< .001	Strong positive association
Deep Learning-Based Genre Pedagogy $\leftrightarrow$ Self-Regulated Learning	.784	< .001	Strong positive association

The first finding therefore supports H1, which proposed that deep learning-based genre pedagogy would be positively associated with students' perceived argumentative writing competence. The strength of the relationship suggests that students who perceived greater exposure to model texts, systematic learning stages, instructional guidance, meaningful conceptual understanding, connections with previous knowledge, and reflection also tended to perceive themselves as more capable of understanding argumentative purposes, recognizing argumentative structure, and distinguishing claims, reasons, and supporting evidence.

Relationship Between Deep Learning-Based Genre Pedagogy and Self-Regulated Learning

The second analysis examined the association between deep learning-based genre pedagogy and students' self-regulated learning. Spearman's analysis produced a coefficient of $\rho = .784$ with $p < .001$, indicating a strong and statistically significant positive relationship. Thus, students who perceived their genre-based learning experience as more systematic, reflective, and meaningful also tended to report stronger self-regulatory behaviors, including goal setting, planning, strategy selection, monitoring, problem solving, use of feedback, self-evaluation, and application of previous writing experience.

This finding supports H2.

Table 5. Hypothesis Testing Summary

Hypothesis	Proposed Relationship	Result	Decision
H1	Deep learning-based genre pedagogy is positively associated with perceived argumentative writing competence	$\rho = .868$, $p < .001$	Supported
H2	Deep learning-based genre pedagogy is positively associated with self-regulated learning	$\rho = .784$, $p < .001$	Supported

Taken together, the correlation results show that deep learning-based genre pedagogy was more strongly associated with perceived argumentative writing competence than with self-regulated learning, although both relationships were substantial and statistically significant.

Supplementary Findings from Open-Ended Responses

The open-ended responses provided additional context for the quantitative findings. The most frequently mentioned helpful aspect of genre-based learning was exposure to model texts and explicit understanding of argumentative structure. Approximately three-quarters of the participants referred to examples, modelling, text structure, or the organization of claims, reasons, evidence, and conclusions as particularly useful. Students commonly explained that model texts helped them understand how an argumentative text should be organized and made it easier to develop arguments in a more systematic manner. Several participants also highlighted the value of step-by-step instruction, guided practice, feedback, and reflection. A smaller number emphasized linguistic support, particularly vocabulary and causal conjunctions, as useful for connecting ideas and strengthening arguments.

In contrast, the most frequently reported difficulty concerned generating and developing ideas into sufficiently strong arguments. Students also commonly reported difficulty finding relevant reasons, evidence, data, or references to support their claims. Other recurring challenges involved maintaining logical connections across paragraphs and selecting appropriate English vocabulary and grammatical structures. These responses complement the quantitative findings by suggesting that students valued genre pedagogy particularly for making the rhetorical structure of argumentative writing more explicit. At the same time, their responses indicate that understanding text structure does not completely eliminate difficulties related to idea development, evidence selection, coherence, and language use.

DISCUSSION

The present study examined the relationships between deep learning-based genre pedagogy, students' perceived argumentative writing competence, and self-regulated learning. Overall, students reported relatively positive perceptions across all three constructs. Self-regulated learning obtained the highest mean score ($M = 4.01$), followed by deep learning-based genre pedagogy ($M = 3.83$) and perceived argumentative writing competence ($M = 3.72$). More importantly, deep learning-based genre pedagogy showed strong positive associations with both perceived argumentative writing competence ($\rho = .868$, $p < .001$) and self-regulated learning ($\rho = .784$, $p < .001$). These results suggest that students who experienced genre-oriented learning as more meaningful, structured, reflective, and supportive also tended to perceive themselves as more capable argumentative writers and as more active regulators of their own learning.

The strongest relationship was found between deep learning-based genre pedagogy and perceived argumentative writing competence. This finding is theoretically reasonable because genre pedagogy makes the expectations of argumentative writing more explicit. Through model texts, analysis of rhetorical structures, guided practice, feedback, and reflection, students can develop a clearer understanding of how claims, reasons, evidence, and conclusions function within argumentative texts. Recent research with undergraduate EFL learners similarly shows that scaffolded genre-based pedagogy can help students develop argumentative texts by making genre knowledge and writing stages more accessible (Samad et al., 2024).

The current finding is also consistent with evidence that genre-based instruction influences not only writing performance but also students' beliefs about their writing capabilities. Abdel Latif et al. (2024), in a study involving university EFL learners, found that genre-based instruction was accompanied by improvements in argumentative and classification writing as well as writing self-efficacy and self-concept. Their instructional model included analysis of model texts, collaborative construction, feedback, and independent writing, which closely resembles the type of structured genre experience emphasized in the present study. These similarities suggest that explicit understanding of genre conventions may reduce uncertainty about what students are expected to accomplish and, in turn, strengthen their perceived competence.

More recent evidence further supports this interpretation. Zhang and Liang (2026) found that genre awareness was directly associated with L2 academic writing ability and was also related to writing outcomes through self-efficacy and learning engagement. Their findings suggest that understanding how genres work may contribute to writing development not only cognitively but also through motivational and engagement-related processes. In the present study, the strong correlation between genre pedagogy and perceived argumentative competence may therefore reflect a similar mechanism: students who understand genre expectations more clearly may feel more confident in recognizing and organizing the essential elements of argumentative writing.

The second major finding was the strong positive relationship between deep learning-based genre pedagogy and self-regulated learning ($p = .784$). This result indicates that genre-oriented instruction may be associated with more than textual knowledge. When learning activities involve goal-directed analysis, structured stages, feedback, reflection, and increasingly independent writing, students are also required to plan, monitor, and evaluate their own learning. These processes are central to self-regulated learning. Thus, genre pedagogy may provide not only a rhetorical framework for writing but also a framework through which students can regulate how they approach writing tasks.

This interpretation is supported by recent research on self-regulation in EFL writing. Anggraeni et al. (2025) found that self-regulated learning-based instruction supported university students' academic writing and emphasized the importance of planning, monitoring, self-reflection, and active learner involvement. The authors also argued that effective writing instruction should combine clear instructional guidance with opportunities for students to develop self-regulatory skills. Similarly, Prompan and Piamsai (2024) reported that integrating peer feedback with self-regulated learning improved both university EFL students' essay writing ability and self-regulation. These studies reinforce the idea that writing development and self-regulation are closely connected when instruction requires students to actively monitor and respond to their own learning processes.

Nevertheless, the correlation with perceived argumentative writing competence was stronger than the correlation with self-regulated learning. This difference may indicate that genre pedagogy is more directly connected to students' understanding of argumentative writing than to their broader self-regulatory behaviors. Genre instruction explicitly addresses rhetorical organization, model texts, claims, supporting evidence, and textual conventions, all of which are directly relevant to perceived writing competence. Self-regulated learning, in contrast, involves broader processes such as motivation, time management, goal setting, persistence, strategic behavior, and self-evaluation. These processes may also be shaped by factors beyond the instructional approach itself, including students' prior learning habits, motivational orientation, and individual learning experiences.

The supplementary open-ended responses provide further support for this interpretation. Many students identified model texts, explicit explanations of text structure, and step-by-step guidance as the aspects of genre-based learning that most helped them understand argumentative writing. These responses are consistent with Samad et al. (2024), who found that scaffolding genre knowledge helped undergraduate students manage the complex stages involved in argumentative writing. The qualitative responses therefore help explain why the correlation between genre pedagogy and perceived argumentative competence was particularly strong: students appeared to value instructional practices that made otherwise implicit rhetorical expectations visible and manageable.

At the same time, students continued to report difficulties in developing ideas, finding convincing evidence, maintaining logical relationships between paragraphs, and selecting appropriate vocabulary and grammatical forms. This finding is important because genre knowledge alone does not eliminate all challenges associated with argumentative writing. Genre pedagogy may help students understand how an argumentative text should be organized, but effective argumentation still requires topic knowledge, evidence evaluation, linguistic resources, and sustained cognitive engagement. The distinction reinforces the importance of integrating genre scaffolding with opportunities for idea development, source use, vocabulary expansion, and feedback.

The findings have several pedagogical implications. First, argumentative writing instruction should not be limited to explaining the final structure of an essay. Students may benefit more when genre features are explored through model analysis, guided comparison, collaborative construction, feedback, reflection, and independent application. Second, self-regulation should be deliberately incorporated into these stages. Teachers can encourage students to set writing goals, prepare plans, use checklists or rubrics, monitor their progress, respond strategically to feedback, and reflect on difficulties after completing a writing task. Such integration would preserve the explicit scaffolding provided by genre pedagogy while gradually transferring responsibility to learners.

The findings also contribute to the emerging discussion of deep learning-based genre pedagogy. In this study, deep learning does not refer to computational artificial intelligence, but to meaningful learning characterized by understanding, reflection, connection, and application. The results suggest that genre pedagogy may be particularly valuable when students are encouraged to understand why argumentative texts are organized in particular ways rather than merely memorizing their formal structure. This distinction is important because meaningful genre awareness may help students transfer their knowledge to new writing situations rather than reproduce a single writing template.

However, the findings should be interpreted cautiously. The study involved only 20 students and relied primarily on self-reported perceptions. The strong correlations therefore represent relationships within this particular group and should not be generalized automatically to broader university populations. Moreover, perceived argumentative writing competence is not equivalent to objectively measured writing performance. Students who perceive themselves as competent may not necessarily produce higher-quality argumentative essays. The cross-sectional design also prevents conclusions about causal direction; it cannot be determined whether stronger genre-learning experiences contribute to greater perceived competence and SRL, or whether more self-regulated and confident students tend to perceive genre-based learning more positively.

Future research should therefore involve larger and more diverse samples and combine perception measures with direct assessments of argumentative writing. A particularly useful extension would employ a pretest-posttest design in which students' argumentative essays are evaluated using a validated rubric before and after genre-oriented instruction. Longitudinal or experimental designs could also clarify whether deep learning-based genre pedagogy actually produces changes in writing performance and self-regulated learning over time. Despite these limitations, the present study provides preliminary evidence that meaningful and reflective genre-oriented instruction is closely associated with both students' perceptions of their argumentative writing competence and their capacity to regulate learning.

CONCLUSION

This study examined the relationships between deep learning-based genre pedagogy, students' perceived argumentative writing competence, and self-regulated learning. The findings showed that deep learning-based genre pedagogy was strongly and positively associated with both students' perceived argumentative writing competence and self-regulated learning. Students who experienced genre-oriented learning as more structured, meaningful, reflective, and supportive also tended to report stronger understanding of argumentative writing and greater ability to manage their own learning processes. These findings suggest that genre-based instruction can support not only students' awareness of argumentative text structure but also important self-regulatory processes such as planning, monitoring, feedback use, and self-evaluation.

Elements such as model texts, explicit explanation of argumentative structure, guided practice, and reflection appear to be especially relevant. However, the findings should be interpreted as preliminary because the study involved only 20 participants and relied on self-reported data. Perceived competence is not identical to actual writing performance, and the correlational design does not establish causality. Future studies should therefore involve larger samples, direct assessment of argumentative writing, and longitudinal or experimental designs to examine these relationships more comprehensively.

ADVANCED RESEARCH

Future research should involve larger and more diverse samples and incorporate direct assessments of argumentative writing performance. Longitudinal, experimental, or pretest-posttest designs are also recommended to examine whether deep learning-based genre pedagogy contributes to changes in writing competence and self-regulated learning over time.

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REFERENCES

- Abdel Latif, M. M. M., Alghizzi, T. M., & Alshahrani, T. M. (2024). The impact of genre-based instruction on Saudi university students' English writing performance and motivation: A mixed-method study. *Frontiers in Psychology*, 15, 1387009. DOI: 10.3389/fpsyg.2024.1387009.
- Ahmed, H. S. (2025). Correlation and causation for cardiothoracic surgeons: Part 4—Distinguishing relationships in data. *Indian Journal of Thoracic and Cardiovascular Surgery*, 41(3), 371–380. DOI: 10.1007/s12055-024-01889-1.
- Almashour, M., & Davies, A. (2023). Exploring learning strategies used by Jordanian university EFL learners in argumentative writing tasks: The role of gender and proficiency. *Frontiers in Education*, 8, 1237719. DOI: 10.3389/educ.2023.1237719.
- Amalia, N. Z., Lestari, L. A., & Anam, S. (2023). The correlation between students' self-regulated learning strategies and their writing ability in argumentative writing class. *International Journal of Pedagogy and Teacher Education*, 7(2), 131–145. DOI: 10.20961/ijpte.v7i2.89318.
- Amini Farsani, M., Stapleton, P., & Jamali, H. R. (2025). Charting L2 argumentative writing: A systematic review. *Journal of Second Language Writing*, 68, 101208. DOI: 10.1016/j.jslw.2025.101208.
- Anggraeni, C. W., Mujiyanto, J., Rustipa, K., & Widhiyanto. (2025). Effects of utilizing self-regulated learning-based instruction on EFL students' academic writing skills: A mixed-method investigation. *Asian-Pacific Journal of Second and Foreign Language Education*, 10, Article 15. DOI: 10.1186/s40862-024-00317-6.
- Bal, M., & Öztürk, E. (2025). The potential of deep learning in improving K–12 students' writing skills: A systematic review. *British Educational Research Journal*, 51(3), 1295–1312. DOI: 10.1002/berj.4120.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Hakim, A. (2023). Genre-related episodes as a lens on students' emerging genre knowledge: Implications for genre-based writing pedagogy, collaborative tasks, and learning materials. *Journal of Second Language Writing*, 60, 101001. DOI: 10.1016/j.jslw.2023.101001.

- Hill, J., Chuko, J., Ogle, K., Gottlieb, M., Santen, S. A., & Artino, A. R., Jr. (2024). Best practices for reporting survey-based research. *AEM Education and Training*, 8(1), e10929. DOI: 10.1002/aet2.10929.
- Ismeti, E., & Ismeti, E. (2026). Formative feedback, writing self-efficacy, and perceived writing competence among EFL university students in Kosovo: An associative cross-sectional study. *Journal of Language and Education*, 12(1), 73–87. DOI: 10.17323/jle.2026.27155.
- Kementerian Pendidikan Dasar dan Menengah Republik Indonesia. (2025, July 23). Permendikdasmen Nomor 13 Tahun 2025 menguatkan arah kebijakan melalui pembelajaran mendalam. Official Kemendikdasmen page.
- Liu, H., Ismail, L., & Ahmad, N. K. (2024). Genre-based approaches and ESL/EFL writing: A review of the literature. *World Journal of English Language*, 14(2), 25–35. DOI: 10.5430/wjel.v14n2p25.
- Prompan, J., & Piamsai, C. (2024). The effects of peer feedback and self-regulated learning on Thai EFL students' writing ability and self-regulation. *LEARN Journal: Language Education and Acquisition Research Network*, 17(1), 100–132. Official article page.
- Robillos, R. J. (2023). The impact of the FlipGrid application within the genre-based framework on students' writing skills and self-regulation of learning awareness. *Studies in Self-Access Learning Journal*, 14(4), 456–475. DOI: 10.37237/140404.
- Samad, I. A., Fitriani, S. S., Yusuf, Y. Q., & Ys, S. B. (2024). Scaffold the writing of argumentative texts to undergraduate students through genre-based pedagogy. *LEARN Journal: Language Education and Acquisition Research Network*, 17(2), 196–222. DOI: 10.70730/CPXF6531.
- Sari, E., & Han, T. (2024). The impact of automated writing evaluation on English as a foreign language learners' writing self-efficacy, self-regulation, anxiety, and performance. *Journal of Computer Assisted Learning*, 40(5), 2065–2080. DOI: 10.1111/jcal.13004.
- Shen, B., & Bai, B. (2024). Enhancing Chinese university students' writing performance and self-regulated learning writing strategy use through a strategy-based intervention. *System*, 122, 103249. DOI: 10.1016/j.system.2024.103249.
- Stefana, A., Damiani, S., Granziol, U., Provenzani, U., Solmi, M., Youngstrom, E. A., & Fusar-Poli, P. (2025). Psychological, psychiatric, and behavioral sciences measurement scales: Best practice guidelines for their development and validation. *Frontiers in Psychology*, 15, 1494261. DOI: 10.3389/fpsyg.2024.1494261.
- Thaksanan, P., & Chaturongakul, P. (2023). Enhancing EFL students' performance and genre awareness in academic writing through genre-based instruction. *Arab World English Journal*, 14(2), 295–311. DOI: 10.24093/awej/vol14no2.21.
- Truong, H. M. (2022). Impacts of process-genre approach on EFL sophomores' writing performance, writing self-efficacy, writing autonomy. *Journal of Language and Education*, 8(1), 181–195. DOI: 10.17323/jle.2022.12165.

- Wang, X., Ma, J., Li, X., & Shen, X. (2023). Validation of self-regulated writing strategies for advanced EFL learners in China: A structural equation modeling analysis. *European Journal of Investigation in Health, Psychology and Education*, 13(4), 776–795. DOI: 10.3390/ejihpe13040059.
- Wardhana, D. E. C. (2022). Exploring the impact of process-genre approach on learners' academic writing and higher order thinking skills. *Journal of Language and Education*, 8(2), 140–153. DOI: 10.17323/jle.2022.12537.
- Wilson, A. B., Bay, B. H., Byram, J. N., Carroll, M. A., Finn, G. M., Hammer, N., Hildebrandt, S., Krebs, C., Wisco, J. J., & Organ, J. M. (2024). Journal recommended guidelines for survey-based research. *Anatomical Sciences Education*, 17(7), 1389–1391. DOI: 10.1002/ase.2499.
- Zhai, X., & Razali, A. B. (2023). Triple method approach to development of a genre-based approach to teaching ESL/EFL writing: A systematic literature review by bibliometric, content, and scientometric analyses. *SAGE Open*, 13(1). DOI: 10.1177/21582440221147255.
- Zhang, C., & Liang, W. (2026). How genre awareness shapes L2 academic writing: Pathways through self-efficacy and learning engagement. *International Journal of Applied Linguistics*. Advance online publication. DOI: 10.1111/ijal.70303.
- Zhang, J., & Zhang, L. J. (2024). Profiling L2 students' writing self-efficacy and its relationship with their writing strategies for self-regulated learning. *System*, 122, 103253. DOI: 10.1016/j.system.2024.103253.
- Zhang, J., Zhang, L. J., & Zhu, Y. (2023). Development and validation of a genre-based second language (L2) writing self-efficacy scale. *Frontiers in Psychology*, 14, 1181196. DOI: 10.3389/fpsyg.2023.1181196.