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The Correlation between Grammar Awareness and Academic Writing Proficiency among EFL Students in the Digital Learning Era

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A B S T R A C T

This study investigates the relationship between grammar awareness and academic writing proficiency among undergraduate EFL students in the digital learning era. Although previous studies have highlighted the importance of grammar awareness in writing, limited research has examined its direct relationship with actual academic writing performance using both metacognitive measures and authentic writing tasks in digital learning contexts. The participants were 50 students from the third and fifth semesters of the English Education Department at Universitas Muhammadiyah Mataram. Grammar awareness was measured using an 18-item Grammar Awareness Questionnaire (GAQ), while academic writing proficiency was assessed through an analytical essay-writing test. Descriptive statistics indicated moderate grammar awareness (M = 42.36) and high academic writing proficiency (M = 85.00). Normality tests confirmed that the data were suitable for parametric analysis. Pearson correlation analysis revealed a very weak and non-significant relationship between grammar awareness and writing proficiency ($r = .033$, $p = .818$). Furthermore, simple linear regression analysis showed minimal predictive power of grammar awareness on writing performance ($R^2 = .001$). These findings suggest that academic writing proficiency is more likely influenced by other factors, such as vocabulary knowledge, writing strategies, topic familiarity, and academic engagement, rather than grammar awareness alone. Therefore, integrating grammar instruction with explicit writing strategy training is recommended in digital learning environments.

Keywords: *Academic Writing Proficiency, Correlation Analysis, EFL Students, Grammar Awareness.*

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INTRODUCTION

In the context of EFL learning, developing academic writing skills remains a significant challenge for many students. Writing is not only about expressing ideas but also about organizing them in a clear and structured way. One important factor that supports this process is grammatical competence, which helps students construct accurate and meaningful sentences (Aguion, 2021). In this regard, grammar awareness defined as learners' metacognitive understanding of grammatical forms and rules plays a crucial role, as it enables students to reflect on and control their language use. This awareness is closely related to both explicit knowledge (conscious understanding of rules) and implicit knowledge (the intuitive ability to use language appropriately in context) (Rianto, 2025).

In higher education, students are expected to produce academic writing that demonstrates coherence, cohesion, and linguistic accuracy. Coherence refers to the logical organization of ideas, while cohesion involves the use of linguistic devices to connect sentences and paragraphs effectively. In addition, academic writing requires strong argumentation skills, including the ability to develop, support, and logically structure ideas. Despite the increasing emphasis on grammatical competence, many EFL learners still encounter difficulties in applying grammatical knowledge effectively in academic writing.

Such challenges often affect the clarity, coherence, and overall academic credibility of their work.

Academic writing is a fundamental skill in higher education, as it enables students to communicate ideas, construct logical arguments, and participate in scholarly discussions. Producing effective academic texts requires not only grammatical accuracy but also the ability to organize ideas systematically, apply appropriate academic conventions, and maintain coherence throughout the text (Lekamge & Smith, 2025). In EFL contexts, students' writing proficiency is often linked to their level of grammar awareness, particularly in their ability to identify errors, reflect on language use, and apply grammatical rules consistently (Al-Jarf, 2022). In the Indonesian context, previous studies have shown that while grammatical competence contributes to writing accuracy, it does not necessarily guarantee overall writing quality (Kusuma, 2025). This suggests that grammar awareness alone, without the support of implicit language knowledge, coherence-building strategies, and effective argumentation skills, may not be sufficient to produce high-quality academic writing (Seyyedrezaei et al., 2024).

Grammar awareness is widely recognized as an important factor in the development of learners' linguistic competence and academic achievement. Students with higher levels of grammar awareness tend to demonstrate a stronger ability to identify errors, perform self-correction, and apply grammatical knowledge accurately in both written and spoken communication (Hussain, 2024). In addition, focused grammar instruction has been found to improve learners' metalinguistic awareness and deepen their understanding of language structure (P. Wang et al., 2024). Within digital learning environments, interactive grammar tools and automated feedback systems can support grammatical accuracy while also encouraging self-regulated learning (X. Wang et al., 2021). Furthermore, learners who actively engage with and reflect on grammatical feedback are more likely to produce coherent and accurate academic writing (Al Maqbali et al., 2026). These findings suggest that grammar awareness should not be viewed solely as a technical skill, but also as a cognitive process that plays a significant role in writing development.

The rapid development of digital technologies has introduced various grammar-checking applications and automated writing feedback systems that influence students' writing practices (Kim & Song, 2024). Previous studies have shown that these tools can improve grammatical accuracy and support writing performance among EFL learners (Zou et al., 2024).However, technological assistance alone does not necessarily lead to long-term grammatical mastery. Learners need to engage metacognitively with the feedback they receive in order to internalize grammatical concepts effectively (Ngo et al., 2024). Excessive reliance on automated tools may result in surface-level corrections rather than meaningful language development (Ünal Gezer, 2024). Therefore, although digital tools provide valuable support, the extent to which grammar awareness directly contributes to students' actual writing performance remains inconclusive.

Recent empirical studies have reported a relationship between grammar awareness and academic writing proficiency. For istance, Subajana and Senaratne (2024) found that grammar awareness significantly predicted writing performance, accounting for 23% of the variance in writing scores. Similarly, Jaya and Susyla (2025) showed that improved grammatical awareness contributes to better syntactic accuracy and overall text organization. However, other studies suggest that the influence of grammar awareness may vary depending on learners' proficiency levels, writing strategies, and engagement with learning taks (Tan et al., 2025). These differing findings indicate that the relationship between grammar awareness and writing proficiency is complex and context-dependent, particularly within digitally mediated learning environments.

Despite the growing body of research, many previous studies have examined grammar awareness and academic writing proficiency separately. In addition, a number of studies have relied primarily on self-reported questionnaires and isolated grammar tests, without incorporating authentic, performance-based writing assessments (Ismayilli Karakoc, 2023). As a result, there is still limited empirical evidence explaining how learners'

metacognitive understanding of grammar-measured through structured instruments such as the Grammar Awareness Questionnaire (GAQ)-relates to their actual academic writing performance, particularly in digital learning contexts. This gap highlights the need for further investigation that integrates both grammar awareness measures and authentic writing tasks to provide a more comprehensive understanding of their relationship.

Therefore, this study investigates the correlation between grammar awareness and academic writing proficiency among EFL students in the third and fifth semesters at Universitas Muhammadiyah Mataram in the digital learning era. It specifically examines the extent to which students' metacognitive understanding of grammar influences their ability to produce coherent, accurate, and academically appropriate writing.The findings of this study are expected to contribute both theoretically to the field of second language acquisition and practically to the development of effective, technology-enhanced grammar and writing instruction in higher education.

METHOD

This study employed a quantitative correlational design to examine the relationship between grammar awareness and academic writing proficiency among EFL students. Correlational research is appropriate for investigating the degree and direction of relationships between naturally occurring variables without manipulation (Shikokoti et al., 2024).

Instruments

Two instruments were used in this study: the Grammar Awareness Questionnaire (GAQ) and the Academic Writing Essay Test. The GAQ consisted of 18 Likert scale items measuring students' metacognitive awareness of grammar, including recognition of grammatical forms, error detection and correction, and reflective understanding of grammar use. The essay writing test required students to produce a 150–250-word academic essay. The essays were evaluated using an analytical rubric covering grammatical accuracy, sentence structure and complexity, cohesion and coherence, and mechanics such as punctuation, capitalization, and spelling.

Procedures

Data were collected online to ensure accessibility and efficiency within the digital learning environment. Both instruments—the Grammar Awareness Questionnaire (GAQ) and the Academic Writing Essay Test—were administered using Google Forms.

First, participants received an invitation along with a brief explanation of the study's objectives and procedures. They were then instructed to complete the GAQ, which consisted of 18 Likert scale items measuring their metacognitive awareness of grammar, including recognition of grammatical forms, error detection and correction, and reflective understanding of grammar use.

After completing the questionnaire, participants were asked to write a 150–250-word essay on a given academic topic. The essay was designed to assess four components of academic writing proficiency: grammatical accuracy, sentence structure and complexity, cohesion and coherence, and mechanics such as punctuation, capitalization, and spelling. Clear instructions and submission deadlines were provided to ensure consistency across participants.

Once all responses were submitted, the data were downloaded from Google Forms into spreadsheet format. The GAQ responses were coded numerically according to the five-point Likert scale, while the essays were evaluated using a standardized analytical rubric covering the four components of writing proficiency. Ethical considerations were maintained throughout the process by ensuring voluntary participation, confidentiality of responses, and participants' right to withdraw from the study at any time. The essays were evaluated using an analytical rubric covering four main components: grammatical accuracy, coherence and cohesion, organization, and vocabulary use. Each component was assessed based on specific criteria using a five-point scale (1 = very poor, 5 = excellent). Grammatical accuracy refers to

the correct use of sentence structure, verb tenses, agreement, and other grammatical forms. Coherence and cohesion refer to the logical flow of ideas and the use of appropriate linking devices to connect sentences and paragraphs. Organization refers to the clarity of text structure, including the presence of an introduction, body, and conclusion, as well as the logical sequencing of ideas. Vocabulary use refers to the range, appropriateness, and accuracy of word choice in expressing ideas effectively. The scores for each component were summed to produce an overall writing proficiency score for each participant.

Data analysis

The collected data were analyzed using both descriptive and inferential statistical techniques. First, the GAQ responses were coded numerically based on the five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Each participant's total score was calculated to represent their overall grammar awareness level. For the essays, a standardized analytical rubric was applied to assess four components: grammatical accuracy, sentence structure and complexity, cohesion and coherence, and mechanics, including punctuation, capitalization, and spelling. The scores for each component were then summed to generate a total essay score representing the participant's academic writing proficiency.

Next, descriptive statistics—including the mean, standard deviation, minimum, and maximum scores—were calculated to summarize the central tendency and variability of both variables. To determine whether the data met the assumptions for parametric testing, normality was assessed using the Shapiro–Wilk test. When the data were normally distributed, Pearson's correlation analysis was conducted to examine the relationship between grammar awareness and academic writing proficiency. If the data were not normally distributed, Spearman's correlation would be used as an alternative.

Finally, simple linear regression analysis was conducted to determine the predictive effect of grammar awareness on students' academic writing performance. The regression model provided information on the extent to which variations in grammar awareness explained variations in essay scores. All statistical analyses were performed using SPSS (Version 26), with the level of significance set at $p < 0.05$.

FINDINGS AND DISCUSSION

Findings

This section presents the statistical results obtained from the Grammar Awareness Questionnaire (GAQ) and the Essay Writing Test administered to 50 students from the third and fifth semesters of the English Education Department at Universitas Muhammadiyah Mataram. Data were analyzed using descriptive statistics, normality testing, Pearson correlation, and simple linear regression to examine the relationship between grammar awareness and students' academic writing proficiency.

Descriptive Statistics

Table 1 displays the descriptive statistics of the two research variables. Students' grammar awareness (GQA) showed a mean score of 42.36 (SD = 10.15) with scores ranging from 18 to 69. This indicates that the participants' grammar awareness level varied considerably, with a relatively wide distribution (range = 51). Meanwhile, the academic writing proficiency (ESSAY) scores had a mean of 85.00 (SD = 6.03), with a minimum score of 70 and a maximum of 98. Compared to GQA, the essay scores demonstrated a narrower range (28 points), suggesting more homogeneous performance among participants.

Table 1. Descriptive statistics of research variables

	Descriptive Statistics					
	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic
GQA	50	18	69	42.36	1.435	10.149
ESSAY	50	70	98	85.00	.853	6.034
Valid N (listwise)	50					

The distribution of both variables was assessed using the Kolmogorov–Smirnov and Shapiro–Wilk tests. For GQA, the p-values were greater than 0.05, indicating that the data

were normally distributed. For ESSAY, although the Kolmogorov–Smirnov test showed a value below 0.05, the Shapiro–Wilk test result exceeded 0.05. Since Shapiro–Wilk is more appropriate for small samples, the data were considered normally distributed.

Table 2. Normality Test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
GQA	.100	50	.200*	.969	50	.203
ESSAY	.130	50	.035	.962	50	.110

Correlation Analysis

The Pearson correlation test was conducted to examine the relationship between grammar awareness and academic writing proficiency. The results show a weak and non-significant correlation between the two variables (r = .033, p = .818). This suggests that students' grammar awareness scores do not statistically correlate with their essay-writing performance.

Table 3. Pearson Correlation

Correlations

		GQA	ESSAY
GQA	Pearson Correlation	1	.033
	Sig. (2-tailed)		.818
	N	50	50
ESSAY	Pearson Correlation	.033	1
	Sig. (2-tailed)	.818	
	N	50	50

Regression Analysis

Simple linear regression was conducted to further determine the predictive power of grammar awareness on students' writing proficiency. The model summary reports that grammar awareness accounts for only 0.1% of the variance in essay scores (R^2 = .001). The ANOVA results show that the regression model is not statistically significant (F = .053, p = .818), confirming that grammar awareness is not a predictor of academic writing proficiency in this sample.

The regression coefficient (β = .020, p = .818) also indicates that every one-point increase in grammar awareness only predicts an increase of 0.020 in essay scores, a relationship too small to be meaningful.

Discussion

The results of this study indicate that grammar awareness does not have a statistically significant relationship with students' academic writing proficiency. The Pearson correlation analysis (r = .033, p = .818) shows a very weak association between the two variables, while the regression analysis (R^2 = .001) confirms that grammar awareness contributes only a negligible proportion to writing performance.

This finding contrasts with several previous studies that reported a strong and significant relationship between grammar awareness and writing proficiency. For example, Subajana and Senaratne (2024) found that grammar awareness significantly predicted writing performance, accounting for 23% of the variance in writing scores. Similarly, Jaya and Susyla (2025) demonstrated that higher levels of grammatical awareness contribute to improved syntactic accuracy and overall text organization. These studies suggest that grammar awareness plays a substantial role in shaping students' writing quality.

However, the present findings are consistent with other studies that report weak or non-significant relationships between grammar knowledge and writing performance. For instance, Kusuma (2025) found that grammatical competence does not necessarily guarantee overall writing quality. Likewise, Al-Fadda (2023) and Widodo (2024) argue that writing proficiency is influenced by multiple factors beyond grammar, including vocabulary knowledge, critical thinking, and rhetorical competence.

This finding provides an alternative perspective to previous studies that emphasize the important role of grammar awareness in writing development (Zou et al., 2024). One possible explanation lies in the distinction between possessing grammatical knowledge and being able to apply it effectively in authentic writing contexts. Students may demonstrate awareness of grammatical rules but still face difficulties when organizing ideas, developing arguments, and maintaining coherence in extended texts (Biber et al., 2021; Hyland, 2019).

Another possible explanation relates to the role of writing strategies in shaping students' performance. Writing proficiency is closely associated with the use of planning, drafting, revising, and self-monitoring strategies (H. Wang & Troia, 2023). Learners who apply these strategies may produce well-structured texts even when their explicit grammatical awareness is moderate. This supports findings in Indonesian EFL contexts, where strategic competence can compensate for limitations in grammatical knowledge (Marzuki & Sutrisno, 2024).

In addition, the relatively homogeneous distribution of writing scores may have influenced the statistical results. The descriptive findings show that students' writing scores were clustered within a narrow range, which can reduce the strength of correlation even when a conceptual relationship exists (Kaur et al., 2018).

The nature of the writing assessment used in this study may also contribute to the findings. Academic writing proficiency was measured using a single essay task, which may not fully represent the multidimensional nature of writing ability. Writing proficiency involves multiple components, including content development, rhetorical organization, language accuracy, and task interpretation (Weigle, 2022).

These findings are consistent with studies suggesting that grammar awareness alone is insufficient to predict overall writing proficiency. Academic writing development requires the integration of grammatical competence, critical thinking, lexical resources, and rhetorical knowledge (Al-Fadda, 2023; Widodo, 2024).

Nevertheless, the results do not diminish the pedagogical importance of grammar awareness. Instead, they highlight the need for an integrated instructional approach that combines grammar teaching with meaningful writing practice. Students should be encouraged to apply grammatical knowledge in authentic contexts rather than relying solely on isolated exercises (Taşdemir et al., 2025). In addition, technology-enhanced learning environments can support this process when combined with active reflection and feedback engagement (Kuma & Meshesha, 2023). Overall, academic writing proficiency appears to be influenced by a complex interaction of linguistic, cognitive, and strategic factors. While grammar awareness remains an important component of language learning, it does not independently determine students' writing performance.

CONCLUSION

This study examined the correlation between grammar awareness and academic writing proficiency among EFL students at Universitas Muhammadiyah Mataram. The findings indicate moderate levels of grammar awareness and high levels of writing proficiency; however, statistical analysis revealed no significant correlation between the two variables. Writing performance appears to be influenced more by other factors, including vocabulary knowledge, writing strategies, topic familiarity, metacognitive awareness, and students' engagement in the learning process, rather than grammar awareness alone. In addition, the use of digital tools and technology-mediated learning environments may also play a role in shaping students' writing performance. The results highlight the multidimensional nature of academic writing development. Pedagogically, grammar instruction should be integrated with authentic writing tasks, strategy training, and formative feedback, particularly in digital learning contexts. Future research should employ multiple writing assessments, longitudinal designs, and qualitative methods to further explore the interaction of grammar awareness with other factors influencing EFL writing development.

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