

## Vietnamese EFL students' use of grammar learning strategies: patterns, performance, and pedagogical implications

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### ABSTRACT

There is a scarcity of research regarding the application of grammar learning strategies (GLS) in English-as-a-foreign-language (EFL) contexts. This study evaluates the use of GLS among 257 Vietnamese EFL students by analyzing their preferences, differences, and correlations with grammar performance. Data for the study were collected using the grammar learning strategy inventory (GLSI) and a grammar test. Descriptive statistics, independent samples tests, and Pearson correlation tests were utilized to examine strategy usage levels, gender and year-level differences, as well as correlations with grammar test scores. The results indicate a significant prevalence of GLS usage (overall mean of 3.5811) and social strategies were identified as the most frequently employed with a mean of 3.7245. No notable differences in strategy utilization were observed between genders or academic year levels, indicating a uniformity within the Vietnamese educational framework. Weak yet statistically significant correlations were observed between grammar test results with metacognitive strategies ( $r=0.179$ ,  $p<0.01$ ), affective strategies ( $r=0.123$ ,  $p<0.05$ ) and social strategies ( $r=0.114$ ,  $p<0.05$ ), suggesting that GLS contribute to grammar mastery, although they are not the sole determinants of success. Findings suggest integrating collaborative and metacognitive strategies into English grammar instruction to help foster more strategic and independent grammar learning habits among university learners.

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## 1. INTRODUCTION

English language education relies on grammar to structure written and spoken communication [1], [2]. Grammar helps convey one's intended meanings clearly in academic and professional settings [3]–[7]. Due to the complexity of grammatical rules, the differences between their home language and English, and the abstract character of many grammatical ideas, English-as-a-foreign-language (EFL) students sometimes struggle to comprehend grammar [8], [9]. Grammar learning strategies (GLS) arose as a solution to the intricacies of grammar acquisition in second language learning [10]. GLS were developed based on considerable language learning method research to help learners with rule memory, contextual application, and grammar assimilation into conversation [10], [11]. GLS moved from teacher-centered to learner-centered methods, emphasizing student engagement in language learning [12]. These methods help overcome language obstacles, particularly in EFL settings where grammar is a big issue [8]. GLS improve student autonomy, permit effective learning, and reduce emotional barriers including fear and decreased motivation

[13], [14]. Grammar's rule-based and abstract nature creates unique challenges that need particular solutions to help students internalize and apply rules in various scenarios [15]. GLS encourages critical thinking, self-regulation, and collaboration, letting students customize strategies [16], [17]. GLS also accommodates ability levels and gender preferences in grammar learning [18], [19]. GLS are vital for bridging language learning knowledge and application.

Pawlak's [13] grammar learning strategy inventory (GLSI) categorizes and evaluates learners' grammatical techniques. Metacognitive, cognitive, emotive, and social methods address distinct grammar acquisition aspects in this instrument. Learning is planned, monitored, and evaluated using metacognitive techniques. Students use these methods to set goals, schedule studies, and assess their progress [20], [21]. Metacognitive techniques boost academic achievement and learner autonomy [16]. Cognitive tactics include memory, analysis, and practice. Understanding grammatical principles and applying them in different circumstances requires cognitive techniques [22], [23]. Azizmohammadi and Barjesteh [19] found that intensive grammatical analysis and practice improves grammar competency. Affective techniques focus on emotional management and motivation during learning. Self-encouragement and anxiety reduction are crucial for learner engagement, particularly during difficult activities [14], [24]. Social techniques emphasize peer and teacher participation to improve learning. For understanding, students often ask questions, debate grammar, and work together [15], [25]. GLSI validation in Iran [21] and China [23] shows its efficacy in analyzing grammar techniques. GLSI helps instructors identify student requirements and build targeted interventions to improve grammar learning. Each GLS category aligns with core learning theories. Metacognitive strategies relate to Flavell [26] concept of self-regulated cognition, while affective strategies reflect Krashen [27] affective filter hypothesis that underscores emotional readiness for learning. Cognitive strategies are grounded in Anderson [28] cognitive learning theory, emphasizing active rule processing and automatization. Social strategies resonate with Vygotsky and Cole [29] sociocultural theory, highlighting peer interaction and scaffolding in grammar development. This theoretical linkage situates the GLSI within broader constructs of learner autonomy and cognitive engagement.

Depending on competency, learning environment, and personal preferences, learners use GLS differently, according to research. The Omani EFL learners chose cognitive and metacognitive methods and used moderate GLS [15]. Similar to Alsied *et al.* [17], Libyan learners used strategies somewhat, favoring practice-based methods and memory. Meanwhile, Juniar and Carissa [30] found that Indonesian students who scored higher used GLS techniques more often and efficiently than those who scored worse. However, Jaruteerapan [31] found that Thai online students used GLS more, especially communication- and collaboration-focused techniques. Similar to Cahyani *et al.* [14], students' learning style and technology integration affect their approach choices. Although these variances exist, metacognitive tactics like self-monitoring and planning improve grammar acquisition [13], [23].

Numerous studies have examined how gender and year level affect GLS use. Azizmohammadi and Barjesteh [19] found that female learners used GLS more than male learners, particularly in emotive and social tactics. Fitri *et al.* [18] confirmed that female learners emphasize emotional control and peer cooperation. However, Lutfian and Alaydrus [24] discovered that male learners preferred cognitive tactics like problem-solving and analysis over collaborative ones. GLS use is heavily influenced by year. According to Jameel and Mahmood [32], advanced learners in upper academic years used metacognitive methods better than freshmen, showing their experience and autonomy in learning. Jung [33] found that older students used strategies more often, notably in self-directed learning and group cooperation. The results show that academic maturity influences GLS selection and effectiveness. Studies have also confirmed a positive correlation between GLS usage and grammar performance. Mistar and Zuhairi [20] found that students who used cognitive and metacognitive techniques had higher grammar scores, highlighting the importance of strategic planning and analysis in grammar learning. Zekrati [34] found that frequent GLS use, particularly practice-based and memory-oriented techniques, improved Iranian high school students' grammar ability. Alnufaie and Alzahrani [35] also found that Arabic students who used the GLSI improved their grammar scores, especially when they used rule-based and example-driven teaching methods. Study by Jameel and Mahmood [32] found that GLS increased grammar proficiency, student confidence, and motivation. The link is not linear, and some research caution against overusing certain tactics. Go *et al.* [22] warned that excessive context-free usage of memorizing methods may limit their long-term retention and practicality. To improve grammar learning, Li [16] stressed the need for a balanced strategy that includes cognitive, metacognitive, and emotional tactics.

Despite increasing attention to GLS worldwide, few studies have explored Vietnamese EFL learners' grammar strategy use using Pawlak's GLSI. Existing research in Southeast Asia (e.g., Indonesia, Thailand) has largely focused on general learning strategies rather than grammar-specific ones, and studies seldom connect strategy use with grammar performance outcomes. Therefore, this study fills this gap by validating the application of GLSI in Vietnam, identifying patterns of strategy use among Vietnamese university learners, and examining their relationship with grammar achievement. These findings extend the

theoretical understanding of strategy-based learning and offer pedagogical guidance tailored to the Vietnamese EFL context. In the realm of EFL learning, this investigation makes numerous significant contributions. Initially, it contributes to our comprehension of the GLS employed by Vietnamese EFL students, thereby addressing a critical lacuna in the literature [14], [18].

The study offers significant insights for EFL instructors and curriculum developers in Vietnam by detecting patterns of strategy use and their effectiveness. These discoveries can serve as a foundation for the development of instructional interventions that facilitate the efficient utilization of GLS, thereby enhancing the overall language skills and grammar proficiency of students [1]. Furthermore, the investigation's emphasis on demographic distinctions, including gender and academic year, provides a nuanced comprehension of learners' preferences and requirements. This information has the potential to influence the creation of customized teaching strategies that are designed to accommodate the diverse learning styles and circumstances of students [22], [24]. Lastly, the research offers empirical evidence on the practical advantages of strategy-based learning, which is supported by its use in EFL instruction, by analyzing the correlation between strategy use and grammar scores [16]. To achieve these objectives, the study addresses the following research questions:

- What is the level of use of GLS among students in four categories (metacognitive, cognitive, affective, and social)?
- Are there significant differences in the use of GLS regarding gender?
- Are there significant differences in the use of GLS regarding year level?
- Is there a significant relationship between the use of GLS and students' grammar performance?

## 2. METHOD

### 2.1. Context and participants

The study was conducted in the middle of the first term of the academic year 2024-2025 at a university in the north part of Vietnam. English was taught as a foreign language and was compulsory for all students at the institution. English courses consisted of general English courses (1, 2, and 3) and English-for-specific-purposes (ESP) courses. The courses were scheduled for the first two years within 15 weeks (from week 1 to week 15). As for coursebooks, general English courses employed smart choice third edition series by Oxford University Press levels 2 and 3. ESP courses were delivered to serve different majors including business, tourism, accounting, mathematics, preschool education, and primary education.

The research comprised 257 students. Table 1 displays the demographic characteristics of the participants (N=257), indicating that the majority were female, totaling 190 individuals (73.9%), whereas male participants comprised 67 individuals (26.1%). In terms of year level, the majority of participants were second-year students, comprising 177 individuals (68.9%), whereas first-year students accounted for 80 individuals (31.1%). The distribution indicates a majority of female and second-year students within the sample.

Table 1. Demographic information of participants (N=257)

Variable	Frequency	Percentage	
Gender	Female	190	73.9
	Male	67	26.1
Year level	First	80	31.1
	Second	177	68.9
	Total	257	100.0

### 2.2. Data collection tools and analysis

This study selected the GLSI developed by Pawlak [13] to assess students' GLS due to its specific focus on grammar learning, which aligns directly with the research objectives. While other instruments provide a broad overview of general language learning strategies, they lack the depth and specificity needed to assess strategies targeted at grammar acquisition. The inventory comprised 70 items distributed across four categories: metacognitive strategies, cognitive strategies, affective strategies, and social strategies.

Table 2 displays the reliability analysis of the categories of GLS, utilizing Cronbach's alpha values. Metacognitive strategies category, consisting of eight items, attained a reliability score of 0.924, whereas cognitive strategies category, which includes 50 items, exhibited the highest reliability with a Cronbach's alpha of 0.986. Affective strategies category, comprising seven items, demonstrated a reliability score of 0.892, while social strategies category, consisting of five items, achieved a reliability score of 0.861.

All categories demonstrate high internal consistency, as evidenced by Cronbach's alpha values surpassing 0.86, which confirms the reliability of the measures employed for these strategy categories.

A multiple-choice grammar test comprising 30 questions was utilized to evaluate students' grammar performance. The assessment encompassed 10 grammar topics: present perfect tense, indirect questions, passives, relative clauses, infinitives and gerunds, past perfect tense, first conditional, second conditional, third conditional, and reported speech. The selected topics were based on the coursebooks used at the institution. In this assessment, students received three alternative options and were tasked with selecting the most appropriate answer to complete each sentence, as shown in Figure 1.

Table 2. Cronbach's alpha of categories of GLS

Categories	Number of items	Cronbach's alpha
Metacognitive strategies	8	0.924
Cognitive strategies	50	0.986
Affective strategies	7	0.892
Social strategies	5	0.861

Choose the best answer to complete the following sentence: \*

**I \_\_\_\_\_ very happy if I \_\_\_\_\_ Japanese.**

would be / spoke

would be / would speak

were / would speak

Figure 1. Sample of one grammar test item

The question items were reviewed by three EFL experts for content validity, ensuring that each item accurately reflected the intended grammar learning construct. A pilot test was conducted with 30 students to refine wording and confirm item clarity. Construct validity was confirmed through high inter-item correlations and alignment with Pawlak's validated factor structure. The grammar test's content validity was verified by two experienced grammar instructors who cross-checked question coverage against the course syllabi. The test's reliability was determined to be 0.817, indicating a high level of reliability in the students' grammar performance data. Table 3 presents the test results, indicating a maximum score of 28, a minimum score of 4, and a mean score of 17.07.

Table 3. Grammar test results

Measure	N	Minimum	Maximum	Mean	SD
Test results	257	4	28	17.07	4.852

Both the inventory and the grammar test were created on the web-based platform Google Forms. The delivery of these two instruments were carried out through a social media platform chat groups in the middle of the semester around week 8. The links of the inventory and the test was sent to the groups. The students participated in the study on the voluntary basis which was stated at the introduction of the inventory and the test along with the information on the study including research purpose and plan. The data collection lasted for one week. After that, the results were stored and prepared on sheets to serve data analysis. As a result, 257 students answered the questions in the inventory and completed the test.

The quantitative data regarding students' utilization of GLS were obtained and analyzed through descriptive statistics, specifically mean and standard deviation. The interpretation scale for the utilization of GLS, derived from mean scores, classifies usage into five distinct levels: extremely low (mean score of 1–1.8), low (1.81–2.6), average (2.61–3.40), high (3.41–4.20), and remarkably high (4.21–5). This scale offers a systematic approach for assessing the frequency or intensity of grammar learning strategy usage, facilitating clear and consistent interpretation of learners' levels of strategy application. Furthermore,

independent samples t-tests were implemented to investigate the variations in the usage of GLS among students based on their gender and year level. Lastly, correlation analyses are employed to investigate the correlation between the grammar performance and the resultant strategy categories. The SPSS program version 20 was employed to conduct these statistical analyses.

### 3. RESULTS AND DISCUSSION

#### 3.1. Results

##### 3.1.1. Use level of grammar learning strategies

Table 4 presents a comprehensive overview of the utilization of GLS among 257 students, categorized into four distinct strategy types: metacognitive, cognitive, affective, and social strategies. The findings demonstrate a significant level of utilization across all categories, with average scores varying from 3.5042 to 3.7245. This indicates that participants regularly employ a range of strategies to improve their grammar learning. The mean score for metacognitive strategies is 3.5691 (SD=0.92345), suggesting that participants are actively involved in planning, monitoring, and evaluating their grammar learning processes. Cognitive strategies demonstrated a mean of 3.5266 (SD=0.88657), indicating a notable level of involvement in analytical and practice-oriented methods, including memorization and the application of rules. The mean score for affective strategies was 3.5042 (SD=0.94694), indicating that participants place importance on managing emotions, motivation, and anxiety in their grammar learning endeavors. It was found that social strategies achieved the highest mean score of 3.7245 (SD=0.90609), underscoring the significance of collaboration, peer support, and interaction in the process of grammar acquisition. The overall mean score of 3.5811 (SD=0.85091) indicates that participants employ a well-rounded approach, incorporating diverse strategies to enhance their learning experience.

Table 4. Level of use of GLS

Categories	N	Mean	SD	Level	Rank
Social strategies	257	3.7245	0.90609	High	1
Metacognitive strategies	257	3.5691	0.92345	High	2
Cognitive strategies	257	3.5266	0.88657	High	3
Affective strategies	257	3.5042	0.94694	High	4
Overall	257	3.5811	0.85091	High	

##### 3.1.2. Differences in the use of grammar learning strategies regarding gender

Table 5 illustrates the variations in the application of GLS by gender across four distinct strategy categories: metacognitive, cognitive, affective, and social strategies. The findings show that there are no statistically significant differences between male and female participants across all categories, with all p-values surpassing the 0.05 threshold. The mean score for metacognitive strategies was slightly higher for males (3.6455, SD=0.85047) compared to females (3.5421, SD=0.94851). However, the p-value of 0.432 indicates that this difference is not statistically significant. The scores for cognitive strategies indicated that males had a marginally higher average (3.6060, SD=0.85667) compared to females (3.4986, SD=0.89741), with a p-value of 0.395 that was not statistically significant. In affective strategies, males exhibited a higher mean (3.6503, SD=0.94933) in comparison to females (3.4526, SD=0.94319); however, the p-value of 0.142 suggests that this difference is not statistically significant. The mean score for males in social strategies was 3.7821 (SD=0.90502), slightly exceeding the mean score for females, which was 3.7042 (SD=0.90798). The p-value of 0.546 indicates that this difference is not statistically significant. The findings indicate that gender does not have a substantial impact on the selection or frequency of GLS usage among the participants.

Table 5. Difference in use of strategies by gender

Categories	Gender	N	Mean	Std. Dev.	P-value
Metacognitive strategies	Male	67	3.6455	0.85047	0.432
	Female	190	3.5421	0.94851	0.408
Cognitive strategies	Male	67	3.6060	0.85667	0.395
	Female	190	3.4986	0.89741	0.386
Affective strategies	Male	67	3.6503	0.94933	0.142
	Female	190	3.4526	0.94319	0.145
Social strategies	Male	67	3.7821	0.90502	0.546
	Female	190	3.7042	0.90798	0.546

### 3.1.3. Differences in the use of grammar learning strategies regarding year level

Table 6 illustrates the variations in the application of GLS between first year and second-year students across four distinct strategy categories: metacognitive, cognitive, affective, and social strategies. The findings indicate that there are no statistically significant differences in strategy usage across different year levels, with all p-values surpassing the 0.05 threshold. In terms of metacognitive strategies, first-year students exhibited a marginally higher mean score (3.6516, SD=0.83028) than their second-year counterparts (3.5318, SD=0.96252), with a p-value of 0.337 indicating no significant difference. In cognitive strategies, first-year students exhibited a slightly higher mean (3.6273, SD=0.83266) compared to second-year students (3.4811, SD=0.90851), with a p-value of 0.222 indicating no significant difference. The mean scores for affective strategies were almost the same, with first-year students achieving a score of 3.5071 (SD=0.91343) and second-year students scoring 3.5028 (SD=0.96424). The p-value of 0.973 suggests there is no significant difference between the two groups. In the context of social strategies, first-year students exhibited a marginally higher mean (3.7750, SD=0.84397) compared to second-year students (3.7017, SD=0.93423). However, the p-value of 0.549 indicates that this difference lacks statistical significance.

Table 6. Difference in use of strategies by year level

Categories	Year level	N	Mean	Std. Dev.	P-value
Metacognitive strategies	First	80	3.6516	0.83028	0.337
	Second	177	3.5318	0.96252	0.310
Cognitive strategies	First	80	3.6273	0.83266	0.222
	Second	177	3.4811	0.90851	0.207
Affective strategies	First	80	3.5071	0.91343	0.973
	Second	177	3.5028	0.96424	0.973
Social strategies	First	80	3.7750	0.84397	0.549
	Second	177	3.7017	0.93423	0.534

### 3.1.4. Relationship between grammar learning strategies and students' grammar performance

Table 7 illustrates the connections between grammar test results and different categories of learning strategies (metacognitive, cognitive, affective, and social) among students, highlighting the statistical significance of these connections. The relationship between grammar test results and metacognitive strategies is characterized by a correlation coefficient of  $r=0.179$ , suggesting a weak positive association that holds statistical significance at the 0.01 level ( $p<0.01$ ). This indicates that students utilizing metacognitive strategies generally attain marginally improved outcomes on grammar assessments. The correlation with cognitive strategies is  $r=0.143$ , indicating a weak positive and statistically significant relationship ( $p<0.05$ ). This suggests that the application of cognitive strategies is somewhat linked to improved performance on grammar tests.

The results of the grammar test show a weak correlation with affective strategies ( $r=0.123$ ,  $p<0.05$ ) and social strategies ( $r=0.114$ ,  $p<0.05$ ), indicating a positive yet weak relationship between these strategies and grammar test performance. Although these relationships show statistical significance, the low correlation coefficients suggest that these strategies exert a minimal influence on grammar test performance. Furthermore, notable positive correlations can be identified among the four strategy types. The correlation between metacognitive strategies and cognitive strategies is statistically robust ( $r=0.904$ ,  $p<0.01$ ), suggesting that students who engage in metacognitive strategies are very likely to also utilize cognitive strategies. Affective strategies and social strategies exhibit notable interconnections with the other strategies, with correlations varying from  $r=0.770$  to  $r=0.856$ , all significant at the 0.01 level. The findings indicate that although metacognitive, cognitive, affective, and social strategies exhibit weak positive correlations with grammar test results, they are significantly and strongly interconnected, implying that students are likely to employ these strategies in conjunction rather than separately.

Table 7. Pearson's correlation matrix for grammar test results and strategies

Variables	Grammar test result	Metacognitive strategies	Cognitive strategies	Affective strategies	Social strategies
Grammar test results	1				
Metacognitive strategies	0.179**	1			
Cognitive strategies	0.143*	0.904**	1		
Affective strategies	0.123*	0.807**	0.856**	1	
Social strategies	0.114*	0.770**	0.801**	0.771**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

### 3.2. Discussion

The results indicate a significant prevalence of GLS usage among Vietnamese EFL students, aligning with earlier research findings. The most commonly utilized approaches were those focusing on collaboration and peer support, evidenced by a mean score of 3.72. This is consistent with the observations made by several researchers [17], [31], who noted comparable trends among Libyan and Thai learners. The prominence of social strategies can be understood within Vietnam's collectivist learning culture, where students often rely on peer collaboration and teacher guidance rather than individual experimentation. Moreover, the national curriculum's heavy emphasis on grammar-based examinations encourages students to adopt rule-based and cognitive strategies, sometimes at the expense of communicative practice. This dual influence of collectivism and exam-oriented instruction shapes learners' strategic preferences and underlines the importance of balancing accuracy-focused and communicative approaches in grammar teaching. While metacognitive strategies, which involve planning and monitoring, were utilized extensively, supporting the findings from Juniar and Carissa [30] that highlight the importance of these strategies in fostering autonomy in high-achieving students. Nonetheless, certain distinctions arise when juxtaposing these findings with other contexts.

The current study highlighted the significance of cognitive strategies, including memorization and analysis. However, Cahyani *et al.* [14] noted a lower prevalence of these strategies among Indonesian students, indicating that contextual elements such as educational systems and resource availability could impact the preferences for these strategies. Furthermore, the strategies that were utilized the least in this study, including the use of rhymes and the maintenance of a language diary, correspond with the findings of Li [16], who observed a lack of engagement in creative or reflective approaches across various contexts. The variations highlight the necessity of considering cultural and educational contexts when analyzing GLS usage patterns.

The findings show no notable variations in GLS usage based on gender or year level. This finding contrasts with the research by Azizmohammadi and Barjesteh [19], which indicated that female learners are more inclined to utilize affective and social strategies compared to their male counterparts. The absence of notable gender differences in this study may be linked to the uniformity of the Vietnamese educational environment, where teaching approaches and learning opportunities tend to be consistent across genders. Additionally, the minor differences noted in average scores, with males showing a preference for metacognitive and cognitive strategies, may indicate personal preferences instead of broader systemic disparities [18]. The observed year-level differences reveal that the minimal variations between first- and second-year students stand in contrast to the findings of Jameel and Mahmood [32], which indicated that more advanced learners typically utilize more sophisticated strategies. This discrepancy may arise from the relatively limited academic experience of second-year students in the current study, as they might not have cultivated notably different learning approaches in comparison to their first-year peers. Furthermore, the consistency in teaching approaches and curriculum development across Vietnamese universities may play a role in the limited variation in strategy application among different year levels.

The analysis reveals weak yet significant positive correlations between GLS usage and grammar performance, reflecting the findings of previous studies [20], [34]. The strongest correlations were observed between metacognitive and cognitive strategies, highlighting the critical role of planning, monitoring, and practice in achieving mastery of grammar. The findings support the idea that strategic learning improves grammar proficiency through the encouragement of critical thinking and contextual application [23]. Nonetheless, the low correlation coefficients indicate that relying solely on strategy use does not guarantee strong grammar performance. This is consistent with the findings of Go *et al.* [22] who cautioned against an excessive dependence on particular strategies such as memorization, as it could hinder long-term retention and practical application. A balanced approach that integrates cognitive, metacognitive, affective, and social strategies is advised to enhance learning outcomes. The robust interconnections among the four strategy types underscore their synergistic characteristics. Learners who engage in metacognitive strategies tend to utilize cognitive and social strategies as well, indicating that promoting one category of strategy can improve the application of additional strategies. This finding highlights the necessity for comprehensive instructional methods that consider various aspects of strategy utilization [21]. Although the correlations are statistically significant, their small effect sizes ( $r=0.11-0.18$ ) indicate modest predictive power. This suggests that while strategic behavior contributes to grammar achievement, other variables such as instructional quality and learning motivation are likely to play stronger roles. A multiple regression analysis, if added in future studies, could further clarify which strategy types most strongly predict grammar performance.

The results present several practical applications for EFL teaching. The significant utilization of social strategies indicates that incorporating collaborative activities, like peer feedback and group discussions, into grammar instruction is essential. This is consistent with the suggestions by Abri *et al.* [15] and Yeh [25], who highlighted the advantages of social learning in enhancing engagement and

understanding. Secondly, the restricted application of creative and reflective strategies underscores the necessity for focused interventions aimed at broadening learners' methods for grammar acquisition. Educators may implement strategies such as grammar journaling or mnemonic devices to foster creativity and introspection, as indicated by Li [16]. Furthermore, the limited correlation between the application of strategies and grammar performance suggests that combining strategy instruction with explicit grammar teaching is essential for achieving optimal results. Ultimately, the lack of notable differences in gender and year level indicates that strategy-based instruction is applicable across the board within the Vietnamese context. It is crucial for educators to stay mindful of individual differences and offer tailored support to meet varied learning needs, as highlighted by Azizmohammadi and Barjesteh [19].

#### 4. CONCLUSION

This study contributes to understanding how Vietnamese EFL students use GLS and how these strategies relate to grammar performance. Social strategies were the most frequently used, reflecting the collaborative nature of learning in collectivist educational contexts, while metacognitive and cognitive strategies were particularly important for fostering learner autonomy and analytical processing. The use of the validated GLSI strengthens the methodological rigor and allows for meaningful comparison with previous research. Several limitations should be acknowledged, including the reliance on self-reported data, the single-institution sample with a predominance of female participants, and the cross-sectional design, which limits causal interpretation. Future studies should employ longitudinal or mixed-method designs across multiple institutions to enhance generalizability and explanatory power.

Pedagogically, the findings support the integration of strategy-based grammar instruction into EFL classrooms. Teachers can promote metacognitive development through goal setting and self-evaluation, reinforce cognitive processing through grammar transformation tasks, and encourage social learning through peer collaboration and digital platforms. Affective support, such as reflective journaling and self-talk activities, can further enhance motivation and reduce anxiety. Embedding these strategies into lesson planning and teacher training can help develop more autonomous and effective grammar learners.

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C : **C**onceptualization

M : **M**ethodology

So : **S**oftware

Va : **V**alidation

Fo : **F**ormal analysis

I : **I**nvestigation

R : **R**esources

D : **D**ata Curation

O : Writing - **O**riginal Draft

E : Writing - Review & **E**ditting

Vi : **V**isualization

Su : **S**upervision

P : **P**roject administration

Fu : **F**unding acquisition

#### CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

#### INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

#### ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the authors' institutional review board.

## DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [PDT], upon reasonable request.

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