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Self-regulated strategies and English grammar learning in online environment

Estrategias autorreguladoras y el aprendizaje de la gramática Inglesa en un entorno de aprendizaje en línea

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Resumen

Este estudio investiga el impacto de las estrategias del aprendizaje autorregulado (SRL) en el aprendizaje de la gramática inglesa en un entorno en línea entre estudiantes universitarios principiantes. Se empleó un diseño descriptivo cuantitativo, con la participación de 213 estudiantes seleccionados, mediante muestreo sistemático de una universidad pública en Ecuador. Los datos se recopilaron a través de una encuesta tipo Likert para identificar las estrategias de SRL y una prueba de gramática para evaluar áreas como los tiempos verbales, la estructura de las oraciones, y la puntuación. Los hallazgos revelaron que los estudiantes utilizan frecuentemente estrategias como la fijación de metas y la gestión de recursos, pero hacen un menor uso de la autoevaluación y el auto- monitoreo. La prueba de gramática mostró altos niveles de competencia, con un 91.1% de estudiantes alcanzando puntajes excelentes, aunque persisten desafíos en áreas específicas como la concordancia sujeto- verbo y la puntuación. El estudio concluye que promover estrategias variadas de SRL, particularmente aquellas relacionadas con la autoevaluación, podría mejorar los resultados de aprendizaje gramatical en entornos en línea.

Palabras clave: Estrategias de aprendizaje autorregulado; gramática inglesa; entorno en línea.

Abstract

This study investigates the impact of self-regulated learning (SRL) strategies on English grammar learning in an online environment among beginner university students. A quantitative descriptive design was employed, involving 213 participants selected through systematic sample at a public university in Ecuador. Data were collected using a Likert-scale survey to identify SRL strategies and an Achievement Grammar test to evaluate proficiency in different grammar areas, such as verb tenses, sentence structure, and punctuation. The findings revealed that while students frequently used goal-setting and resource management strategies, self- monitoring and self-assessment were less used. The achievement grammar test showed high levels of grammar proficiency, with 91.1% of students achieving excellent scores, although challenges still persisted in specific areas like subject-verb agreement and punctuation. The study concludes that promoting diverse SRL strategies, especially those involving self- evaluation, could enhance grammar learning outcomes in online settings.

Keywords: Self-regulated learning strategies; English grammar; online environment.

1. Introducción

Nowadays, learning autonomously has become an important ability for students in online environments, especially when dealing with complex areas such as English grammar. Thus, students should adopt self-regulated learning (SRL) strategies; as García et al. (2018) and Sins et al. (2024) pointed out, these strategies help students to set goals, monitor processes, and use effective study habits to reach their academic success. Furthermore, Razavipour et al. (2020) stated that grammar includes the rules and structures to create clauses and sentences. Hence, in situations where there is no teacher interaction, these strategies become even more important, as they help students manage grammar difficulties and master their rules. In an ideal scenario, self-regulated learning strategies would empower students to take control of their learning process and overcome the challenges that grammar presents in online learning environments.

Despite the popularity of self-regulated strategies as an approach to learning English grammar in online environments, some students still struggle with the usage of these strategies. Many students in Ecuador face challenges in learning English due to socioeconomic factors that limit access to language education, inadequate teachers' instruction, insufficient teacher training, lack of technological sources, and low levels of language proficiency (Newman et al., 2023; Tamayo & Cajas, 2020).

Within a public university in Loja, the integration of an online environment has highlighted these challenges, impacting students' learning processes. However, research on SRL strategies and learning English grammar has focused on traditional classrooms, leaving a gap in the impact of self-regulated strategies and English grammar learning in an online environment. This study therefore aims to address this gap by examining the SRL strategies used by beginner university students in online environments and exploring their effectiveness in improving English grammar achievement.

Previous studies have explored the impact of self-regulated learning (SRL) strategies on English grammar achievement. For instance, Aliasin et al. (2022) examined the effectiveness of self-regulated learning strategies on learning English relative clauses among EFL students. Similarly, Wardani et al. (2023) explored the relationship between self- regulated strategies and English grammar achievement among undergraduate students. Moreover, Hunutlu (2023) provided an overview of self-regulation strategies in the online learning process, suggesting that SRL strategies increase students' academic achievement and online learning experience in EFL/ESL contexts. Thus, Chansri et al. (2024) found positive correlations between self-regulated learning strategies such as interpretation, self- assessment, and persistence and English language skills.

Studies, like those by Aliasin et al. (2022) and Wardani et al. (2023), mainly focused on advanced learners or traditional classrooms, avoiding how beginners use self-regulated strategies in online settings. Research has highlighted the benefits of these strategies for improving academic performance, but more attention needs to be given to how these strategies impact English grammar learning in an online environment among beginner university students (Newman et al., 2023; Tamayo & Cajas, 2020). Therefore, there is still a gap when it comes to beginner students learning English grammar in an online setting. For this reason, this study aims to fill this gap by examining which self-regulated strategies

are the most commonly used by university students for learning English grammar in online environments. The results will offer valuable insights into tailored strategies that can better support this group of learners, contributing to a more inclusive view of self-regulated learning in language education.

The relevance of this study extends across multiple groups, including educators, curriculum designers, and policymakers in language education. For educators, understanding how beginner students use self-regulated strategies to learn English grammar in an online setting can help shape teaching methods that promote student's independence and engagement in virtual se-

ttings. Curriculum designers can use these insights to create resources and activities that meet the students' needs, which could improve grammar learning outcomes. Moreover, for policymakers, this study emphasizes the need to include self-regulation strategies to better prepare students for online learning. By addressing these areas, this research provides a foundation for improving English grammar learning in online environments. The purpose of this study is to investigate the impact of self-regulated learning strategies on English grammar learning in an online environment among beginner university students.

With this information in mind, this following section examines the roles of self-regulated learning (SRL) strategies in improving English grammar skills among beginner university students in online environments. SRL strategies, such as goal-setting, self-monitoring, and self-assessment, are important for fostering autonomy and critical thinking in language learning (García et al., 2018; Hunutlu, 2023). These strategies enable students to identify strengths and weaknesses, manage resources, and adjust their study habits to overcome challenges in English grammar learning (Schunk & Greene, 2017; Zimmerman, 2015).

Research highlights the positive impact of SRL strategies on academic outcomes. For instance, Aliasing et al. (2022) found significant improvements in grammar skills when students employed goal-setting and self-monitoring. Similarly, Chansri et al. (2024) demonstrated enhanced grammar performance through self-assessment practices. Effective SRL strategies also include metacognitive approaches like self-questioning, which promote deeper understanding (Zimmerman, 2015), and resource management, where multiple tools such as grammar textbooks or mobile apps are used to enhance the learning process (Usher & Schunk, 2018).

Despite their benefits, students face challenges in their English grammar learning due to the complexity of rules. Common difficulties include mastering verb tenses, subject-verb agreement, sentence structure, the appropriate use of prepositions, articles, or modifiers (Murphy, 2019; Najat, 2020). In addition, word order and proper use of punctuation often present

challenges, especially in questions and negative statements. SRL strategies help students address these issues by promoting systematic, self-control, and effective study habits (Jakešová & Kalenda, 2015; Jafarkhani et al., 2019).

Furthermore, study habits were included as complementary techniques to SRL strategies. Well-developed routines improve learning retention and foster adaptability in the learning process (Jafarkhani et al., 2019). However, further research is needed to understand how beginner university students actually use SRL strategies in online context, since most of the studies focus on advanced learning or traditional classrooms (Aliasin et al., 2022; Wardani et al., 2023). Addressing this gap can enhance the effectiveness of SRL strategies for English grammar learning and support better academic outcomes for students within online learning environments.

2. Materials and Methods

Research setting

This research was conducted at a public university located in Loja, Ecuador. The context of this study involves an online learning environment where students engage in self- regulated learning activities as part of their English grammar coursework, delivered through Moodle. This online setting allows a controlled digital context where students are encouraged to practice self-regulated learning strategies, fostering autonomy in their learning process.

Research participants

The population for this study consists of approximately 474 beginner university students, from which 213 students were selected using systematic sampling. As Creswell (2014) claimed, systematic sampling is a probability method where participants are selected at regular intervals from a population list, reducing bias. An online calculator determined the sample size, ensuring a 95% reliability level with a 5% error range. This sample size provides suffi-

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cient data to analyze the correlation between self-regulated strategies and English grammar learning. The sample includes students from four groups, as outlined in Table 1 below.

Table 1

Sample of population

Group A	Group B	Group C	Group D	Total
54	53	53	53	213

Research approach

A quantitative approach was used to evaluate and describe the impact of self-regulated learning strategies on English grammar learning. Quantitative research involves the collection and analysis of numerical data to identify patterns and trends (Creswell & Guetterman, 2019). In this regard, this approach allows a description of how students use self-regulated learning strategies in an online environment. To achieve the study's objectives, an Achievement Grammar Test was used to evaluate students' knowledge of English grammar, and Likert Scale Survey collected insights on which self-regulated strategies students used for learning English grammar.

Research design

A descriptive design was used to provide an understanding of the self-regulated learning strategies used by beginner university students and their English grammar achievement. As Creswell and Guetterman (2019) explained, descriptive design helps to understand the

patterns and trends in the context without attempting to explain the causality between variables. Likewise, Wiersma (2000) claimed, descriptive research is used to observe and describe aspects of a situation as it naturally occurs, focusing on understanding patterns or phenomena without manipu-

lating the variables. This study aimed to investigate the impact of self-regulated strategies on English grammar learning in an online environment among beginner university students. Additionally, it intends to identify which self-regulated learning strategies were the most commonly used by students and evaluate the students' achievement in English grammar learning.

Data collection sources and techniques

To achieve the study's objectives, two primary data collection instruments were used: an Achievement Grammar Test and a Likert Scale Survey. In addition, both of these instruments were applied through Google Forms. The Achievement Grammar Test consisted of 20 multiple-choice questions divided into five specific sections aligned with the indicators being investigated. These sections focused on the following grammar aspects: *verb tenses, sentence structure, word order, subject and verb agreement, and punctuation.* The Likert Scale Survey was designed to gather quantitative data regarding students' perceptions on self-regulated learning strategies. This Likert scale is a type of agreement scale that measures participants' levels of agreement or disagreement with specific statements. The survey included statements related to the self-regulated strategies, such as *goal-setting, self-monitoring, goal-setting, metacognitive, resource management, study- habits, and self-control*. Each statement in the survey was rated on five-point Likert scale, with Strongly agree assigned a value of 1, *Agree* a value of 2, *Neutral* a value of 3, *Disagree* a value of 5, and *Strongly disagree* a value of 5. Therefore, this survey allowed a detailed understanding of students' self-regulated learning strategies used for English grammar learning. These instruments aligned with the study's quantitative approach, allowing the comprehension of the patterns and trends of self-regulated strategies and English grammar learning.

Both instruments were validated to ensure the research process. *Construct validity* was used to confirm that the instruments measured the intended variables accurately. Additionally, *Validity by Experts* was conducted by

five specialists in English language as second language, who checked the instruments for clarity, coherence, and relevance. To quantify the validity, the V de Akaike (AIC value) was calculated for each instrument. The Achievement Grammar Test obtained a value of 1,10, indicating a high level of validity, while the Likert´s Scale Survey achieved a value of 1,13, confirming its design. These validation measures ensured the instruments for collecting the necessary data for the study.

Data analysis

In the data analysis, descriptive statistics was used to identify the self-regulated strategies that students use when learning English grammar. This analysis focused on summarizing and interpreting the frequency in applying the self-regulated learning strategies. Moreover, measures such as means, standard deviations, maximum, and minimum values were calculated to analyze the quantitative data. Therefore, in order to

analyzed the qualitative and quantitative data, JAMOVI software was used in conducting the descriptive and statistical analysis, allowing a clear understanding of the variables.

Procedure

This study was conducted in sequential phases to ensure the investigation of the self- regulated learning strategies and English grammar achievement. This research process followed these phases:

1. **Preparation phase**
   - Literature review: An extensive literature review was conducted. The information related with self-regulated learning strategies and their impact on English grammar learning was supported by identifying some previous studies. This phase helped to emphasize the research questions, the objectives, instruments, and methods.

- Instruments design and validation: Based on the objectives, the Achievement Grammar Test was created with 20 multiple-choice questions, divided in five aspects: verb tenses, sentence structure, word order, subject-verb agreement, and punctuation. Thus, the Likert Scale Survey included statements for identifying the most common self-regulated strategies such as goal-setting, self- monitoring, goal-setting, metacognitive, resource management, study-habits, and self-control. Therefore, both instruments were reviewed by experts to ensure validity.

2. **Sampling and participants selection**

- A sample of 213 students from a public university in Loja, Ecuador, was selected from an approximate population of 474 beginner university students. An online calculator determined the sample size, ensuring a 95% confidence level with a 5% margin of error.

3. **Data collection phase**

- Achievement grammar test: The achievement grammar test was administered to participants via Google Forms. Previously, the students were informed about the objectives and the structure of the test which measured their knowledge in English grammar in the specific aspects; verb tenses, sentence structure, word order, subject and verb agreement, and punctuation.
- Likert Scale Survey: Following the grammar test, the Likert scale was administered through Google Forms to collect data regarding the most common self-regulated learning strategies used by students for learning English grammar.

4. **Data analysis phase**

- Descriptive statistical analysis: JAMOVI software was used to present the. Descriptive statistical analysis on the data collected from both the Achievement Grammar Test and the Likert Scale survey. Subsequently, the analysis focused on identifying

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students' grammar achievement and self-regulated learning strategies.

5. **Interpretation and Conclusion**

- The results were interpreted based on the research objectives. The most commonly used self-regulated strategies were identified, along with trends in student's grammar performance. Thus, conclusions were drawn based on these findings, providing insights into how self-regulated strategies might support English grammar learning among beginner university students.

3. Results

3.1. Likert scale Survey

This section aligns with the research objective:
To identify the most commonly self-regulated learning strategies that students use for learning English grammar.

Table 1

Descriptive statistics of the self-regulated strategies

	N	Mean	SD	Minimum	Maximum
1.Goal-setting	213	4.07	0.801	1	5
2. Self-monitoring	213	4.05	0.760	1	5
3. Self-assessment	213	4.03	0.795	1	5
4. Metacognitive	213	4.05	0.766	1	5
5. Resource management	213	4.14	0.806	1	5
6. Study habits	213	4.00	0.885	1	5
7. Self-control	213	4.14	0.764	1	5

Note. Results based on the general findings of the survey on student's perceptions of self-regulated strategies

The data described in Table 1 presents students' frequency of self-regulated learning strategies usage. With a sample of 213 students, the descriptive statistics highlight the trends and variability of the strategies.

For starters, the mean scores for all self-regulated strategies fall within a very high range, 4 being the lowest and 4.14 being the highest. This indicates that respondents do not frequently engage and partake in the usage of these strategies. Specifically, Resource management and Self-control share the highest mean scores, being the ones that students partake in the least. These strategies are followed by Goal setting, 4.07, which is still relatively high and presupposes a low emphasis on setting goals to be achieved and proposing a clear objective.

Self-monitoring and Metacognitive strategies share a mean score of 4.05, which means that students do not place a particular or high level of importance on tracking self- progress and higher-order thinking strategies. Similarly, Self-assessment, 4.03, is also not very frequently used, as students do not engage much in this process. Lastly, Study habit is

the least scored strategy with a mean of 4, being the one strategy, that students take part in the most. However, as 5 is the maximum score, it is still not a highly valued strategy and it indicates that while students do engage with it, they do not partake in it all that often, only in a moderate amount.

Moreover, the standard deviations (SD) for the proposed strategies go from 0.760 to 0.885, indicating that while there exists a degree of variability in responses, students, for the most part, have a very consistent perception regarding their use of self-regulated strategies. For instance, Self-monitoring (0.760) obtained the lowest SD, which illustrates that students' responses do not vary that much and there is a very clear consensus among the use of this specific strategy. Self-control (0.764), Metacognitive strategies (0.766), and Self- assessment (0.795) share the three following lowest SDs. Then, the following SDs belong to Goal setting (0.801) and Resource management (0.806). Lastly, the highest SD is assigned to Study habits (0.885), which indicates a moderate level of indecisiveness in the responses provided by the students regarding this strategy.

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Ultimately, the range of responses that go from 1 (minimum) and 5 (maximum) across all strategies illustrates that respondents used all the options provided in the Likert scale. Notwithstanding, the mean scores indicate that the responses leaned towards the higher and more negative options on the scale. This means that students have a somewhat negative or indecisive perception of their use of self-regulated strategies.

All in all, the findings suggest that students do not perceive themselves as people who frequently implement self-regulated strategies in their learning process. As it can be appreciated the differences among mean scores are relatively small with very low SD; however, the slight differences could inform students' preferences regarding the different strategies.

Table 2

Percentage distribution of responses on Self-regulated learning strategies

Self-regulated strategies	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Goal-setting	32.4 %	44.6 %	21.6 %	0.5 %	0. 9 %
Self-monitoring	0.5%	0.5%	22.1%	47.4%	29.6%
Self-assessment	0.5%	1.4%	23.0%	45.1%	30.0%
Metacognitive	0.5%	0.5%	22.5%	46.5%	30.0%
Resource management	0.5%	2.8%	15.0%	45.5%	36.2%
Study habits	0.9%	4.2%	20.7%	42.3%	31.9%
Self-control	0.5%	0.5%	18.8%	45.1%	35.2%

Note. The table shows the percentage of responses for each self-regulated learning strategy evaluated on a five-point Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree.

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Table 2 delves into the percentages obtained by each self-regulated learning strategy. These percentages indicate the perception students have regarding the strategies. The

survey used a five-point Likert scale with responses ranging from strongly agree to strongly disagree.

First and foremost, as can be appreciated in the table, Goal-setting is the strategy with the most positive responses, with 32.4% strongly agreeing and 44.6% agreeing. This indicates that students highly value this strategy and deem it effective for their learning. Then, 21.6% remain neutral, 0.5% disagree, and 0.9% strongly disagree. This demonstrates a moderate level of skepticism or doubtfulness from students regarding the use of this specific strategy.

However, Self-monitoring received significantly lower levels of agreement. For instance, only 0.5% strongly agree and 0.5% agree. Then, 22.1% remain neutral, and the remaining either disagree (47.4%) or strongly disagree (29.6%). These negative responses by students highlight the fact that students do not engage in self-monitoring very often and they do not perceive it as effective for their learning process.

Furthermore, continuing with Self-assessment, only a small number of respondents provided positive responses. Specifically, 0.5% of respondents strongly agree, while 1.4% agree. A surprising number of respondents, 23%, chose to remain neutral. On the other hand, 45.1% disagree, and the remaining 30% strongly disagree. These results suggest that students undervalue evaluating their progress and reflecting on their learning by themselves, which is an integral aspect of self-regulated learning strategies.

Similarly, Metacognitive strategies also received mostly responses falling within disagreement options. Particularly, 0.5% of respondents strongly agree, 0.5% agree, and 22.5% remain neutral. Conversely, a surprising percentage of 46.5% disagree and 30% strongly disagree. This suggests that metacognitive strategies are not highly popular among students, whether due to a lack of knowledge or interest.

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As for Resource management, there is a very slight rise in the agreement categories, although this is minimal. To illustrate, 0.5% strongly agree, and 2.8% agree. However, fewer students remain neutral, lowering the percentage to 15%. Concerning the negative responses, almost half of the students, 45.5%, disagree, and the remaining 36.2% strongly disagree. As has been the trend, the responses inclined more towards negative perceptions, indicating an estrangement from students regarding this specific self-regulated learning strategy.

Likewise, regarding Study habits, 0.9%strongly agree, 4.2% agree, and 20.7% chose to be neutral with their response. The remaining percentage is divided into two remaining categories: disagree (42.3%) and strongly disagree (31.9%). This highlights a very high level of skepticism and hesitancy about the effectiveness of Study habits as a self-regulated strategy that could potentially enhance students' learning.

Lastly, Self-control also received answers that strongly lean toward the more negative responses. For instance, only 1% is equally divided into two categories: strongly agree (0.5%) and agree (0.5%). Additionally, 18.8% remain neutral, 45.1% disagree, and 35.2% strongly disagree with the usage of this strategy. These results illustrate that students hardly ever engage in Self-control as a learning strategy, most of them being either doubtful or unconvinced about its value.

Overall, the responses do not change much in each strategy, leaning more towards the negative responses. As can be seen, very low percentages fall within the positive options, meaning that students do not frequently engage with self-regulated learning strategies. This could mean that students do not have the necessary knowledge about the proposed self- regulated learning strategies, making them ambiguous options in their learning process.

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3. 2. Achievement Grammar test

This section aligns with the research objective:

To evaluate students' achievement in English grammar learning by using the self-regulated learning strategies.

Table 3

Descriptive statistics of the Achievement Grammar test

Final score	
N	213
Mean	18.7
Median	20
SD	2.31
Mínimum	7
Maximum	20

Note. Estimates based on the final score obtained in the Grammar Achievement Test

Table 3 presents the descriptive statistics derived from the Achievement Grammar test. This test was scored out of a maximum of 20 points and was administered to a sample of 213 students. This table is a visual illustration of students' overall performance and how their scores are distributed.

The mean score obtained by students on the achievement test is 18.7, which indicates that students had a very remarkable performance. A fact that is further supported by the median score of 20, which informs that at least half of the total number of students obtained the maximum score possible. This reflects a very high level of grammar proficiency among a significant section of the overall sample.

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Moreover, even though the minimum score obtained by students in the sample is 7, the SD of 2.31 indicates that the majority of scores are fairly close to the mean (18.7). While it is true that the SD indicates a moderate level of variability, it is not overly high and the scores are generally grouped around the higher end of the spectrum. This also goes in alignment with the maximum score of 20, which showcases outstanding grammar proficiency.

In conclusion, the majority of students performed remarkably well on the test, as suggested by the high numerical values of the mean, median, and perfect maximum score. Notwithstanding, the minimum score and the degree of variability suggest that there are students who struggled with properly completing the test and might not have as high of a grammar proficiency.

Table 4

Achievement Grammar Test Equivalents

Grammar test	Frequencies	% Total	% Accumulated
Excellent (15.1 – 20)	194	91.1 %	91.1 %
Good (10.1 – 15)	14	6.6 %	97.7 %
Regular (5.1 – 10)	5	2.3 %	100.0 %

Table 4 depicts the data distributed across the scale utilized to group the obtained scores and make a qualitative equivalent. In this case, three categories were recognized: Excellent, Good, and Regular. As can be appreciated, the majority of students, 91.1%, fall within the range assigned to Excellent, so their scores range from 15.1 to 20. This indicates a very high level of mastery regarding grammar. Additionally, 6.6% of students achieved scores within the range of 10.1 to 15, which is equivalent to a "Good" rating on the grammar test. Lastly, a very low percentage of 2.3% obtained scores between 5.1 and 10, being assigned a "Regular" grammar proficiency. In summary, while the majority of students demonstrate high grammar proficiency, there is a small portion of the sample that had either a somewhat satisfactory or poor

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performance. Therefore, efforts should be placed upon this minority to better their performances.

Table 5

Descriptive statistics of indicators from Achievement test

	N	Mean	Median	SD	Minimum	Maximum
Verb Tenses	213	3.80	4.00	0.568	0.00	4.00
Sentence Structure	213	3.81	4.00	0.510	1.00	4.00
Word Order	213	3.84	4.00	0.501	1.00	4.00
Subject-Verb Agreement	213	3.63	4.00	0.731	0.00	4.00
Punctuation	213	3.62	4.00	0.735	0.00	4.00

Table 5 provides descriptive statistics for the five indicators that the achievement test was divided into: verb tenses, sentence structure, word order, subject-verb agreement, and punctuation. Each indicator is scored out of 4 points and since there are 5 indicators, it equals the 20 points of the overall test. The test was administered to 213 students.

To start, concerning the mean scores, it can be appreciated that students had a very high level of accomplishment across all the indicators, with mean scores ranging from 3.62 to

3.84. Specifically, Word order (3.84) has the highest mean score, indicating that students have minimal problems with this indicator of grammar. Word order is closely followed by Sentence structure (3.81) and Verb Tenses (3.8), which means that students have little issues with recognizing proper sentence structure and the accurate tenses of the verbs.

Then, Subject-Verb Agreement (3.63) and Punctuation (3.62) follow, and while these obtained the lowest mean scores, students are still highly proficient at recognizing the proper subject-verb agreement and being able to properly use punctuation marks.

Continuing with the median scores, the fact that it is 4 across all aspects suggests that at least half of the students obtained the perfect score in each and all indicators. These findings indicate that the majority of students have a very high level of grammar proficiency. Furthermore, this fact is further supported by the maximum score which is also 4 across all indicators. This highlights the fact that students' scores lean more towards higher grades, which in turn positively reflects on students' level of grammar proficiency.

Additionally, the SDs that range from 0.501 to 0.735, show very minimal level of variance in the scores obtained. Particularly, Word order (0.501) has the lowest level of variance, showcasing a more general consensus in the scores obtained. This indicator is closely followed by Sentence Structure (0.510) and Verb tenses (0.568), which highlight a slightly higher level of variance. On the other hand, Subject-Verb Agreement (0.731) and Punctuation (0.735) have the highest levels of variance, meaning that students may have struggled more in these two indicators than in the other three. However, since the SDs are moderately low, the scores do not change much, and this indicates that students have an overall good grasp of grammar knowledge.

Lastly, the minimum scores being 0 for Verb Tenses, Subject-Verb Agreement, and Punctuation, and 1 for Sentence Structure and Word Order, show that some students do have a very low level of grammar proficiency, albeit very few. Therefore, some emphasis should be placed on these aspects so that these scores can be made higher. In conclusion, it can be appreciated that the majority of students have a high level of grammar as perceived by their remarkable performance on the achievement grammar test. However, a very minimal portion of the sample still needs to further work on the refinement of their grammar skills.

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Figure 1

Mean scores across all indicators of the Achievement test

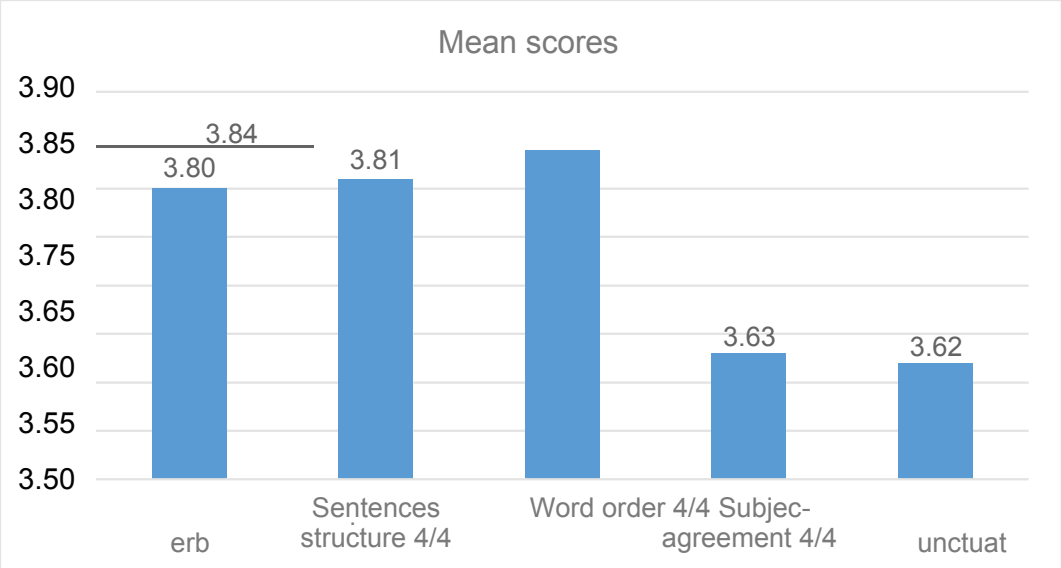

Figure 1 is a visual representation of the mean scores obtained by students on the achievement grammar test in each indicator. As can be seen, there are five general indicators, namely, Verb tenses, Sentence structure, Word order, Subject-verb agreement, and Punctuation. This figure is presented with the objective of facilitating understanding.

As it can be easily appreciated, Word order obtained the highest mean score of 3.84 out of 4 possible points. This is closely followed by Sentence Structure (3.81) and Verb tenses (3.80) which only have a 0.01 difference among them. Moreover, they are followed by Subject-Verb Agreement with an average score of 3.63, which also has a difference of 0.01 with the lowest scoring indicator, Punctuation with 3.62 out of 4.

As these scores are exceptionally remarkable, it can be said that students have a very high level of proficiency across all the indicators in the grammar test, with minimal differences. For instance, students have little to no trouble with effectively arranging words and sentences in a way that is logical and grammatically correct. Additionally, they can accurately conjugate verbs and use them in appropriate contexts. Likewise, students are modera-

tely successful at ensuring that the subjects and verbs agree in both number and person, while also being capable of using the proper punctuation marks to grammatically enhance their writing. All in all, students are proficient across all the indicators, having high scores in all of them. Moreover, some indicators are slightly higher than others, which indicates what are the strengths and weaknesses students have regarding grammar proficiency.

4. Discussion

This study addresses the self-regulated learning (SRL) strategies and English grammar learning among beginner university students in an online environment. Using a descriptive design and a quantitative approach, the study aimed to answer these two questions:

1. Which self-regulated learning strategies are most commonly used by students for learning English grammar?
2. How do self-regulated learning strategies affect students' achievement in English grammar?

By addressing these questions, the study provides insights that can help students to understand the effectiveness of SRL strategies, enhancing autonomy and improving their language proficiency. Likewise, for teachers and the professional community, this study provides insights that could help instructional practices, enabling the development of pedagogical strategies that integrate SRL effectively.

Which self-regulated learning strategies are most commonly used by students for learning English grammar?

The results from the Likert Scale Survey revealed that students frequently use strategies such as *goal-setting* and *resource management*, while strategies like *self-monitoring* and *self-assessment* are less used. These results align with

the studies by Aliasin et al. (2022) and Chansri (2024), which emphasize the effectiveness of goal-setting in helping students to stay focused and improve their academic performance. As Boonlom et al. (2024) stated, students who set their goals showed effectives learning behaviors and better motivation to achieve their academic objectives.

However, there is a limited application of certain strategies, such as *self-monitoring* and *self- assessment*, which are important for long-term academic performance. Therefore, this indicates that students prefer to use organizational strategies over reflective practice as Vargas et al. (2018) mentioned. In addition, considering the research from Pabón and Espinel (2023) identified challenges in the implementation of self-assessment in higher education, such as confusion, need for more time and effort, and lack of preparation in both students and teachers. As a result, these barriers limited the application of self-monitoring and self-assessment, contributing to the preference for organizational strategies.

How do self-regulated learning strategies affect students' achievement in English grammar?

On the other hand, the results from the ***Achievement Grammar Test*** showed that most of the students had a high level of proficiency, with many students scoring in the "excellent" range. This is related to the research of Wardani et al. (2023), who identified a positive impact of self-regulated strategies on English grammar learning. However, it is worth mentioning that specific areas, such as *subject-verb agreement and punctuation*, showed significant differences in scores. This is supported by Schneider and McCoy (1998) who analyzed the grammatical errors in the students' writing activities and found that subject-verb agreement is one of the most problematic areas. Therefore, these findings suggest that while self-regulated strategies are beneficial for students and can enhance English grammar, Wang et al. (2021) suggested, the impact of SRL may be limited to the grammatical areas that require more attention or specific instruction.

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Indeed, there are discrepancies between the use of self-regulated strategies and the variations in grammar achievement may be attributed to the beginner level of the participants. Zimmerman (2015) argued that beginner students often lack the metacognitive skills necessary to implement strategies such as *self-monitoring* and *self- assessment*. Moreover, the online learning environment may have added additional challenges, as students with limited prior exposure to digital tools and autonomous learning may struggle to truly benefit from these strategies (Hunutlu, 2023).

This study supports the existing literature that emphasizes the self-regulated strategies for learning English grammar. However, it also highlights specific problems in how beginner students use these strategies, especially those related to self-monitoring and self- assessment. These difficulties could be attributed to the limited experience of the participants, which can reduce their ability to engage in self-regulation processes. Additionally, the challenges within the online learning environment may influence the student's ability to use self-regulated strategies effectively. For instance, socioeconomic factors that limit access to language education, inadequate teachers' instruction, insufficient teacher training, lack of technological sources, and low levels of language proficiency could have shaped students' perceptions and behaviors (Newman et al., 2023; Tamayo & Cajas, 2020).

While the findings provide valuable insights into the impact of self-regulated learning strategies on English grammar learning among beginner university students, alternative explanations must be considered to understand some factors that could have influenced these results. One possible factor is the influence of students' prior educational experiences, since beginner learners often use strategies that are familiar to them, which may reflect the practices emphasized in the educational settings. Furthermore, the research by Basántez (2016), revealed that students use strategies they were previously exposed in their education. This indicates that beginner students use familiar strategies when facing new academic challenges.

Another factor could be the reduced interactions with teachers and other classmates, this might lead learners to emphasize the usage of strate-

gies that do not need external feedback, such as resource management. As Navas et al. (2024) mentioned, the lack of these interactions may limit the use of strategies that rely on collaboration and feedback, inclining students toward the autonomous methods.

In addition, students' limited exposure to digital tools and autonomous learning may have reduced their ability to use or engage with other complex strategies like self-assessment. This finding supports the work of Sui et al. (2023) who highlighted the importance of technological environments to promote self-regulated strategies. The researchers found that the usage of web-based self-assessment tools directly influences students' self- regulation.

Moreover, the high level of proficiency students demonstrated in the Grammar Achievement test could be attributed to test-taking motivation or perhaps external preparation efforts. Nevertheless, the differences in some grammar indicators such as subject-verb agreement and punctuation may be related to L1 language transfer, where students apply rules from their first language that interfere with English grammar patterns.

Lastly, socioeconomic issues may have influenced students' perceptions of self-regulated learning. Factors such as limited access to resources, lack of technology literacy, and other responsibilities like work or family commitments could have influenced the usage of certain self-regulated strategies over others as suggested by (Newman et al., 2023; Tamayo & Cajas, 2020). These contextual factors highlight the complexity of learning in online environments and emphasize the need for targeted support to address these challenges.

Furthermore, this study employs a descriptive design and a quantitative approach to examine the use of self-regulated learning (SRL) strategies among beginner university students in online environments and their impact on English grammar learning. As a descriptive study, its scope focuses on observing and analyzing the frequency of SRL strategies and English grammar achievement. The focus on beginner students and the online learning context

provides specific insights into this population, making the results important for similar educational contexts.

Despite the contributions, there are some limitations in the study. One limitation is the self-reported nature of the *Likert scale survey*, which may introduce bias since students' responses might not reflect the exact use of self-regulated learning (SRL) strategies. Additionally, the sample was obtained from a single university in Ecuador, which restricts the generalization of the findings to broader populations. Hence, the context of the online learning environment may have influenced how students adapted and used SRL strategies in English grammar learning. Also, the lack of direct teacher interaction and limited guidance within the digital environment could have affected the results of strategies such as self-monitoring and self-assessment.

On the other hand, the *Achievement Grammar Test* measures students' proficiency in specific areas of grammar. However, its scope is limited to these indicators, which means it does not provide a comprehensive view of the student's overall grammatical abilities. For example, the test might not check how students apply grammar rules in real-life contexts, such as writing essays or engaging in conversations. This narrow focus may ignore important aspects of the language use that are relevant for practical language competencies.

Nevertheless, the methodology has some strengths. The use of quantitative instruments, such as the Likert Scale Survey and the Achievement Grammar Test, allowed for an objective evaluation of students' strategies and performance, ensuring the data collected was consistent and measurable. Furthermore, the usage of systematic sampling provided a reliable representation of the target population, enhancing the credibility of the results. In conclusion, while the study offers comprehension of the self-regulated learning strategies and English grammar achievement, addressing these aforementioned limitations in the

future could enhance the application of the findings, contributing to a better understanding of the topic.

5. Conclusions

Beginner university students in an online environment frequently use goal-setting and resource management as self-regulated learning strategies. These strategies help students organize their study routine and use the academic resources to achieve academic success.

The result of the Achievement Grammar Test showed high grammar proficiency among students, with 91.1% achieving excellent scores. Specific strengths were observed in indicators like word order and sentence structure, demonstrating students' competence in these areas.

While students showed frequent use of organizational strategies, the application of self- assessment and self-monitoring was notably limited. This indicates potential gaps in their approach to evaluating progress and adjusting learning methods.

Despite the high achievement, challenges were identified in specific areas such as subject- verb agreement and punctuation. These aspects require additional attention to support students' comprehensive grammar learning.

The study shows that students would benefit from more support in using self-regulation strategies like self-assessment and self-monitoring. Teachers should provide resources or activities that encourage students to regularly check their progress and modify their learning methods.

6. Author's contribution

IAMJ: Conceptualization, data collection, analysis of results, discussion
EJCC: Introduction, conclusions, and recommendations.

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