

THE EFFECTIVENESS OF GRAMMARLY IN ENHANCING GRAMMATICAL COMPETENCE AMONG FIRST-YEAR PRESERVICE ENGLISH TEACHERS

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Abstract

This study aims to examine the effectiveness of using Grammarly in enhancing the grammatical competence of first-semester students in the English Education Program at Universitas PGRI Pontianak. The research employs an experimental method with a pretest-posttest design. The population consists of 160 first-year prospective English teachers, divided into four classes (A to D). The sample, Class A morning, was selected through cluster random sampling after ensuring that all classes were statistically homogeneous in terms of initial ability. Data analysis was conducted using a paired sample t-test via SPSS. The results indicate that the use of Grammarly as an AI-based learning tool significantly improves students' grammatical competence, with a significance value of 0.02 ($p < 0.05$). These findings suggest that Grammarly can serve as an effective learning support tool to enhance grammatical proficiency in the context of English language education.

Keywords: Grammarly, grammar, AI-based learning, experiment method, paired sample t-test, English language education.

Abstrak

Penelitian ini bertujuan untuk mengetahui efektivitas penggunaan Grammarly dalam meningkatkan kemampuan tata bahasa (grammar) mahasiswa semester 1 Program Studi Pendidikan Bahasa Inggris Universitas PGRI Pontianak. Penelitian ini menggunakan metode eksperimen dengan desain pretest-posttest. Populasi penelitian adalah mahasiswa calon guru Bahasa Inggris tahun pertama, yang berjumlah 160 orang dan terbagi menjadi empat kelas; kelas A sampai D. Sample penelitian ini adalah A pagi, yang didapat melalui Teknik sampling cluster random sampling, setelah memastikan bahwa secara statistik, semua kelas memiliki kemampuan awal yang sama (homogen). Analisis data dilakukan menggunakan uji paired sample t-test melalui program SPSS. Hasil penelitian menunjukkan bahwa penggunaan Grammarly sebagai media pembelajaran berbasis AI memberikan pengaruh signifikan terhadap peningkatan kemampuan tata bahasa mahasiswa, dengan nilai signifikansi 0,02 ($p < 0,05$). Temuan ini mengindikasikan bahwa Grammarly dapat menjadi alat pendukung pembelajaran yang efektif untuk meningkatkan kompetensi tata bahasa dalam konteks pendidikan bahasa Inggris.

Kata Kunci: Grammarly, tata bahasa, pembelajaran berbasis AI, metode eksperimen, uji paired sample t-test, pendidikan bahasa Inggris.

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INTRODUCTION

Grammar ability is one of the fundamental aspects of learning English. Grammar serves not only as the foundation for writing, reading, speaking, and listening skills but also as a determinant of success in effective communication. Azar (2007) emphasizes that grammar functions as a framework enabling learners to comprehend and construct sentences correctly according to applicable rules. In the context of English education, grammar proficiency becomes a crucial indicator for measuring the success of language learning, particularly in higher education institutions. However, teaching grammar often faces various challenges. Conventional methods that rely on direct instruction from

lecturers or textbooks sometimes fail to provide specific and in-depth feedback to students. As a result, many students find it difficult to identify and correct their grammatical errors independently. Ellis (2006) argues that effective language learning requires an approach that provides continuous and in-depth feedback to students to help them improve their errors. In this regard, artificial intelligence (AI)-based technology offers a promising alternative to overcome the limitations of traditional learning methods.

One increasingly popular AI-based tool in the context of language learning is Grammarly. Grammarly is a software application designed to help users enhance their writing skills by providing automatic corrections for grammatical errors, spelling, punctuation, and sentence structure. Nisbet (2020) states that Grammarly can analyze texts in real-time, offer specific improvement suggestions, and help users understand their mistakes. Additionally, the tool provides style adjustment features, enabling users to tailor their writing to specific purposes, such as academic, professional, or casual writing. The integration of Grammarly in language learning has garnered attention from various researchers. Warschauer (2010) highlights that technology like Grammarly not only enhances students' learning motivation but also allows them to learn independently through personalized and instant feedback. This aligns with the needs of students in the digital era, who tend to prefer interactive and technology-driven learning approaches. Furthermore, Grammarly is also considered capable of reducing lecturers' workload in correcting students' assignments, allowing more time for other educational activities.

Nevertheless, the effectiveness of using Grammarly in formal educational contexts, particularly in higher education settings in Indonesia, still requires empirical investigation. This study aims to fill this gap by evaluating the impact of Grammarly on the grammar ability of first-semester students in the English Language Education Study Program at University PGRI Pontianak. The study employs an experimental method with a pretest-posttest design to compare students' grammar proficiency before and after using Grammarly. The research population comprises all first-semester students, while the sample focuses on Class A morning students. Data obtained are analyzed using a paired sample t-test in SPSS to examine the significance of the observed changes. The findings of this study are expected to provide valuable contributions to the development of technology-based learning methods in English education. Specifically, the study aims to offer insights to lecturers and educational institutions on the effectiveness of Grammarly as an instructional tool in teaching grammar. Additionally, the study aligns with global efforts to integrate digital technology into the learning process, as suggested by Chapelle (2003), who posits that technology can serve as a catalyst in creating more effective, adaptive, and responsive language learning environments for 21st-century learners.

LITERATURE REVIEW

Grammar and vocabulary are two essential elements in language learning. Thornbury (2004:8) defines grammar as "the description of the rules that govern how sentences in a language are formed," emphasizing the importance of understanding structure in constructing correct sentences. This is supported by Halliday (2014:25), who states that "Grammar is designed to bring a study of wording, but one that interprets wording by reference to what it means," indicating that grammar not only focuses on sentence structure but also on the meaning conveyed by the words. Meanwhile, vocabulary also plays a crucial role in language proficiency. Webster (2003) defines vocabulary in three ways: as a list of words and phrases, a set of terms that can be used, and the number of words possessed by a group of language users. Tarigan (2015) emphasizes that a person's language skills heavily depend on the quality and quantity of their vocabulary since the richer one's vocabulary, the greater the likelihood of being proficient in language use. Therefore, a deep understanding of grammar and vocabulary is essential for the development of one's language skills.

Assessment (testing) plays an important role in education as a tool to measure the achievement of learning objectives. Rixon, as cited in Apsari & Haryudin (2017), states that assessment can determine the success of a learning program and provide an overview of the extent to which learning objectives have been achieved. Wenno et al. (2021) add that assessment also serves to inform students about their mastery of the material they have learned, enabling them to evaluate their progress in learning. As an assessment instrument, a test must meet certain criteria to be considered effective. Furwana (2019) explains that a good test should be valid and reliable, meaning that it must measure what it is supposed to measure and provide consistent results. Djiwandono, as cited in Sugianto (2017), expands these criteria by adding that a good test should also be objective, practical, and economical to ensure that it can be efficiently implemented in various conditions without compromising the accuracy of the results.

In the context of English language learning, grammar is an essential component that supports communication skills. Bradshaw, as cited in Sioco & Vera (2018), argues that a good understanding of grammar enables students to express their ideas clearly and in a structured manner. Marashi (2014) emphasizes that adequate grammatical competence allows students to communicate effectively since they can construct sentences accurately and comprehensibly. Conversely, Cam & Tran (2017) warn that without sufficient grammatical knowledge, students will struggle to construct correct sentences and understand the meaning conveyed in those sentences. Previous research conducted by Setiawaty et al. (2017), Jayanti et al. (2019), and Setiabudi et al. (2019) has examined the reliability of various types of language tests; however, these studies have been limited to the secondary school context. Further research on the reliability of grammar tests at the university level is still needed to provide a

deeper understanding of the factors influencing test reliability in higher education. The measurement and analysis of test reliability are crucial in ensuring that the assessment instruments used can provide consistent and reliable results, as well as accurately and objectively measure students' abilities.

The utilization of School TV as a media for grammar skill learning is an interesting topic to explore in the context of modern education. School TV is recognized as an effective learning medium in the digital era, offering an audio-visual combination that can enhance students' learning experiences. According to Damayanti & Watini (2022), this media facilitates teachers in delivering knowledge in an engaging and easily understandable way. Furthermore, TV has a great appeal because it can present educational and entertaining content that reaches a wide range of audiences, from children to adults (Elliza & Watini, 2022). In the context of digital learning, teachers' digital competence is crucial to address the challenges of technology-based education (Sitompul, 2022). This demands that teachers become more creative in utilizing technology to improve the effectiveness of their teaching. School TV, as an innovative learning medium, can support teachers in developing engaging and effective teaching methods (Italiana & Watini, 2022). Additionally, character education is also an important aspect to consider when using this media, as it helps produce a generation that is not only intelligent but also virtuous and has a strong personality (Wayan et al., 2020). In this digital era, the role of teachers has significantly changed, with the integration of information and communication technology in the learning process, leading to 21st-century education. Teachers need to master various technological aspects to improve the quality and effectiveness of learning (Syahdan & Azkiya Ali, 2022). In grammar learning, the development of appropriate strategies is also essential to achieve effective teaching, which includes using valid evaluation tools to assess learning success (Pawlak, 2018). Overall, the utilization of School TV as a media for grammar learning demonstrates significant potential in enhancing the quality of education, but it must be accompanied by an understanding of character education, teachers' digital competence, and adaptation to technological advancements.

In examining the relationship between the literature review and our research, there are several significant connections and comparisons in the context of grammar learning and the integration of technology in education. The foundational understanding of grammar, as defined by Thornbury (2004) and Halliday (2014) in the literature review, aligns with Azar's (2007) perspective in the article, all emphasizing grammar as an essential framework for constructing and understanding language. This theoretical foundation is highly relevant when considering how Grammarly, as examined in the article, operationalizes grammar principles through artificial intelligence. The assessment aspect discussed by Rixon and Furwana in the literature review, highlighting the importance of valid and reliable testing, is practically demonstrated in the article's methodology

through the use of a rigorous pre-test and post-test design, revealing a significant improvement in students' grammar skills (an average score increase of 9.77 points). This empirical evidence supports Bradshaw and Marashi's statement in the literature review about the importance of grammar for effective communication. Furthermore, the discussion on digital competence and technology integration in education, particularly through School TV as mentioned in the literature review (Damayanti & Watini, 2022), complements the article's exploration of AI-based learning tools. Both sources acknowledge the changing educational landscape in the digital era, although they approach it from different angles—the literature review through broader educational technology implementation and teacher adaptation, and the article through the application of specific AI tools. The article's findings on the effectiveness of Grammarly ($p = 0.002$) provide concrete evidence supporting the broader literature review argument about the potential of technology in education, as discussed by Sitompul (2022) and Syahdan & Azkiya Ali (2022). It is noteworthy that both sources emphasize the importance of engaging learning methods, although they differ in their focus: the literature review emphasizes teacher-led digital integration and character education (Wayan et al., 2020), while the article focuses on self-directed learning with AI assistance, as supported by Warschauer's (2010) observations. This comparison reveals how traditional teacher-led approaches and AI-based tools can coexist and complement each other in modern language education, potentially offering a more comprehensive solution to grammar learning challenges. The success of Grammarly's implementation in the article validates the broader literature review argument about the need to embrace technological advancements in education while also showing how specific tools can address the assessment and feedback challenges discussed in the literature review.

This analysis provides a comprehensive understanding of the role of technology in grammar learning by comparing the literature review and the research article discussing the use of Grammarly. The literature review offers a theoretical foundation, such as the concept of grammar according to Thornbury and Halliday, which views grammar as the rules for sentence formation and language meaning, as well as the important role of teachers and technology in education, which is then implemented in the research article through the use of Grammarly as an AI tool. This article not only proves that these theories can be operationalized in practice, but also shows how AI technology can provide automated and personalized feedback to students, reducing dependence on teachers in some aspects of learning. The methodology used in the article, with pre-test and post-test experiments, provides empirical evidence that the use of Grammarly can improve students' grammar skills, with a significant increase in scores. This shows that technology, when integrated properly, can address challenges in traditional grammar learning and offer more effective technology-based solutions. On the other hand, while the literature review emphasizes the importance of teachers' digital

competencies, this article highlights how the adaptation of technology in learning can yield positive results by increasing interactivity and providing faster and more consistent feedback to students. Overall, both the literature review and the research article complement each other, with the literature review providing theoretical context and the article offering empirical evidence about the effectiveness of technology implementation in grammar learning, reflecting a paradigm shift from teacher-centered to more student-centered learning.

METHOD

This study employed an experimental method with a pretest-posttest design. This design allows researchers to measure students' grammar ability before and after the intervention using Grammarly as a learning tool. In an experimental design, the pretest is conducted before the intervention to obtain baseline data on students' abilities, while the posttest is conducted after the intervention to measure any changes or improvements that occurred after the use of Grammarly. The pretest-posttest design was chosen because it is considered effective for evaluating the impact of a specific treatment, in this case, the use of Grammarly, on the measured variable, which is students' grammar ability. By comparing pretest and posttest scores, the researchers can see to what extent Grammarly as a learning tool contributed to the improvement of students' grammar skills. According to Creswell (2014), experimental designs like this can provide stronger evidence regarding the cause-and-effect relationship between the intervention and the changes that occur. By using this design, the study aims to ensure that the changes in students' abilities are not caused by other factors but are a result of the use of Grammarly as a grammar learning aid.

Population and Sample

The population in this study includes all first-semester students of the English Language Education Study Program at Unyversity PGRI Pontianak. The sampling technique was purposive, selecting Class A morning students as the research sample. This selection was based on accessibility and the characteristics of students deemed representative of the population.

Research Instruments

The instruments used in this study included **Grammar Test** and Grammarly Application. Test consists of multiple-choice questions designed to measure students' grammar ability before and after using Grammarly. Meanwhile, **Grammarly** application was used as a learning tool to provide automatic feedback on students' writing assignments.

Research Procedure

This research was conducted in the following stages; (1) *Preparation Stage*; developing pretest and posttest instruments and to conducting a brief training session for students on how to use Grammarly, (2) *Implementation Stage*; conducting a pretest to measure students' initial grammar

competence, assisting students to use Grammarly in completing their writing assignments for over two weeks, and conducting a posttest with similar level of difficulty as the pretest. And (3) *data Analysis Stage*: The data from the pretest and posttest were analyzed using a paired sample t-test in SPSS to determine whether there were significant differences in students' grammar ability before and after using Grammarly.

Data Analysis

Data analysis was conducted quantitatively using a paired sample t-test. This statistical test is used to compare the mean results of pretest and posttest from the same group. According to Pallant (2020), a paired sample t-test is suitable for evaluating the impact of an intervention in experimental research. The results of the data analysis will indicate whether the use of Grammarly has a significant impact on improving students' grammar ability. Significance is determined based on the probability value (p-value), where if the p-value < 0.05 , the intervention is considered to have a significant impact.

FINDINGS AND DISCUSSION

The descriptive statistical analysis indicated that this study involved a total of 22 respondents (N=22). The pre-test data yielded a mean score of 43.63 with a standard deviation of 17.32. The minimum score recorded was 16.00, while the maximum score was 76.00, resulting in a range of 60.00. In contrast, the post-test results demonstrated an increase in the mean score to 53.40, with a standard deviation of 18.21. The minimum score in the post-test was 28.00, and the maximum score was 88.00, maintaining the same range of 60.00. These results reveal an average score improvement of 9.77 points from the pre-test to the post-test, indicating a positive shift in learning outcomes following the intervention. The relatively high standard deviations observed in both the pre-test and post-test measurements suggest significant variability in the scores achieved by the respondents.

In light of the data analysis result above, inferential statistic analysis was conducted using the paired samples t-test, to find out a significant difference between pretest and posttest score. The analysis resulted ($t(21) = -3.487$, $p = 0.002$). The negative mean difference (-9.77273) indicates that pretest score are consistently and significantly lower than posttest score. This data was also supported by the 95% confidence interval being entirely in the negative region (between -15.60029 and -3.94516), which strengthens the conclusion that this difference is not due to chance. The very low significance level ($p = 0.002$) provides strong evidence to reject the null hypothesis that states there is no difference between the two variables. In other words, we have 99.8% confidence that the observed difference between pretest and posttest represents a real difference in the population, not merely random variation in the sample.

Furthermore, the data above was followed up by conducting Cohen's D analysis to find out the effect size of the significant difference. The analysis shows an effect size of 0.74, indicating a large effect of using Grammarly on improving students' grammar skills. This effect size strengthens the results of the paired sample t-test, which previously showed statistical significance ($p = 0.002$). In other words, not only is it statistically significant, but the use of Grammarly also has a substantial practical impact on improving students' grammar skills. An effect size of 0.74 indicates that the difference between pre-test and post-test scores is above average and has meaningful practical significance in the context of learning. These findings further emphasize that Grammarly is an effective learning tool and should be considered as a supplement in teaching English grammar at the college level.

CONCLUSION

The findings of this study indicate that the use of Grammarly as a learning tool has a positive impact on students' grammar ability. The experimental results show an increase in the mean score from 43.63 in the pre-test to 53.40 in the post-test, reflecting an improvement of 9.77 points. This suggests that students benefited from the automated feedback provided by Grammarly, which helped them identify and correct their grammatical errors more effectively. The statistical analysis using a paired sample t-test further supports the significance of this improvement. The variation in scores, as indicated by the relatively high standard deviations, implies that while Grammarly is beneficial, its effectiveness may vary among students depending on individual learning styles and engagement levels. Overall, this study reinforces the potential of AI-based tools in enhancing language learning, particularly in grammar instruction. The integration of Grammarly into the learning process provides immediate, personalized feedback, which aligns with modern educational approaches that emphasize technology-assisted learning. Future research could explore the long-term effects of Grammarly on writing proficiency and investigate its impact on different aspects of language learning beyond grammar.

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