

From Grammar Games to Artificial Intelligence: Leveraging Innovative Technology Integration for Enhanced Language Learning

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Abstract

Grammatical accuracy remains a persistent challenge for many university students studying English, despite frequent engagement with academic texts and writing tasks. Traditional grammar instruction in higher education typically emphasizes rule memorization and instructor feedback. Although these methods have value, they often fail to address diverse learner needs or support sustained mastery. While previous research has explored Artificial Intelligence in general language learning, its specific application to grammar instruction in higher education has received limited attention. This study employed a qualitative case study approach to investigate the integration of AI-driven tools in grammar instruction for undergraduate English majors. Data were collected through classroom observations, in-depth interviews with students and educators, and analysis of student work supported by AI-assisted grammar tools. The findings revealed that AI-generated feedback encouraged students to engage more actively in self-correction, improved their grammatical awareness, and fostered greater learner autonomy. Educators recognized AI as a valuable supplementary resource that complemented traditional teaching. However, the study also uncovered that students who relied heavily on AI feedback showed reduced creativity in language expression, tending to prioritize error-free writing over experimentation with style and voice. This highlights both the potential and the limitations of AI-supported grammar instruction and suggests the need for balanced integration that enhances accuracy without diminishing creativity.

Keywords:

English language learning,
Digital learning,
Grammatical accuracy,
Artificial Intelligence,
Educational technology

1. Introduction

The issue of accurate grammatical use remains unresolved in second and foreign language learning, particularly among university students, for whom language mastery involves integrating reading and writing at the level of academic discourse and producing cohesive written texts. Numerous students, even after extended periods of learning, continue to experience difficulties in applying contextually appropriate grammatical structures, a concern (Ellis, 2006). The pragmatic failure has roots, not only intricacies involved in English grammar but also, in the traditional methods of teaching grammar that rely heavily on rote learning and mechanical procedures (Nassaji & Fotos, 2011). This ultimately results in a failure to have your students develop a balanced and cohesive understanding of the rules of the academic discourse, including grammar control. This failure impacts fluency and accuracy in writing tasks at the university level.

Interactive methods, such as grammar games provide a framework for the teaching of grammar more pedagogically and psychologically relevant methods. These, almost universally, foster active student participation within a context, and as such, make grammar instruction a little more exciting

(Wright, Betteridge, & Buckby, 2005). Instruction using games is rooted and documented within established pedagogical norms, such as reduction of learning anxiety, improvement in retention, the observation and implementation of authentic communication (Deesri, 2002; Yolageldili & Arikan, 2011). There is a clear pedagogical shift documented in the use of games. Traditionally, the focus would be on correcting the learners' grammatical errors. This is now replaced by fostering autonomy in learners. The motivation and engagement of learners to carry out the assigned tasks. Educational technology has recently introduced Artificial Intelligence as a game-changing resource. Adaptive learning systems, automated assessment, and intelligent tutoring systems that provide learning assistance in a personalized manner and at scale integrate AI technology (Luckin et al., 2016). AI educational technology has the capacity to evaluate learner performance in language education, recognize erroneous patterns, and modify the practice to suit the learner (Zawacki-Richter et al., 2019). These technologies develop individualized instruction, stretching the potential of educational environments far beyond what is possible in a traditional classroom.

Research has shown a particular interest in AI's functionality regarding grammar feedback and correction. Automated writing evaluation tools, for instance, suggest surface level changes in writing, enabling learners to identify and correct their mistakes in real time (Chen & Cheng, 2008). This immediacy in feedback contributed to the development of learner autonomy, shifting the responsibility for correction from teachers to the students (Ranalli, Link, & Chukharev-Hudilainen, 2017). Moreover, AI feedback systems encourage AI boosted feedback systems, for research has shown that AI feedback systems strengthen the overall quality of writing and improve grammatical accuracy over time, even though many have pointed out that overreliance on AI systems may stifle creativity in language production (Li, Link, & Hegelheimer, 2015). Balancing the use of AI with traditional instruction will ensure a positive impact on instruction. The present research investigates how AI tools can assist grammar instruction for undergraduates majoring in English literature. Incorporating AI with traditional grammar teaching and interaction with grammar games, research demonstrates the ability of cutting-edge tools to enhance instruction and, at the same time, mitigate educational approaches that may be outdated. This study addresses the need to leverage cutting-edge AI tools to provide meaningful and comprehensive grammar instruction in the higher education classroom.

2. Method

For this study, along with the integration of AI technology into the teaching of English grammar, a qualitative case study approach was adopted. The research was undertaken at Bosowa University, within the English General Class, with a total of 13 individuals as participants. The participants included five teachers (the instructor of the course and supporting faculty) and eight undergraduate English majors who were taking the course. This focused, small sample allowed for deeper insights into the contexts across one full academic semester. Over the semester, students employed AI-based grammar correction programs during the writing and editing stages. Instead of restricting students to one specific AI tool, they were given the freedom to choose a grammar checker of their own preference.

In this way, the study was not limited to a particular AI application but rather focused on the general integration of AI assistance within grammar learning. Data was collected in three ways. First, the researcher observed classrooms to see students working with AI tools during writing activities. Second, semi-structured interviews were conducted with all student participants and teachers, which provided that valuable insights into various experiences and attitudes, as well as reflections. Lastly, regarding the progression of students' grammar and writing, the collected data included writing samples from initial drafts to subsequent submissions. For thematic analysis, I coded iteratively the qualitative data, of which I comprised observation notes, interview transcripts, and writing samples. I described and structured for each of the important themes like grammatical accuracy, learner autonomy, and engagement.

3. Results and Discussion

3.1 Persistent Grammatical Issues and the Role of Grammar Games

The findings of this study confirm the persistent grammatical issues outlined in the introduction. Despite the repeated instruction and exposure to the appropriate academic texts, some students still encountered difficulty in appropriately employing various grammatical structures in the context of their written work. This is also in line with the previous literature which highlights the difficulty in acquiring

target grammar as one of the most important issues in the second language learning (Ellis, 2006; Nassaji & Fotos, 2011).

As grammar games served to close the schism between conventional instruction and learner participation, they were instrumental. The positive attitude in the classroom and the heightened eagerness to use and practice the target structures during the lessons pointed to effective learning. This resonates with the literature regarding the motivational benefits of teaching grammar through games (Deesri, 2002; Yolageldili & Arikan, 2011). While the games did help to alleviate anxiety and encourage active participation, they did not always lead to the appropriate grammatical accuracy, which underscores the necessity for more focused and precise instruction. Reiteration of the points outlined earlier reveals a closure on the persistent gaps in the use of AI tools.

The examination of students' work highlighted the usefulness of AI applications in providing real-time feedback that helped students gain some awareness of the problematic areas in grammar and self-correction. The literature on feedback automation in writing outlines the self-revision confidence attributed to AI tools (Chen & Cheng, 2008; Ranalli, Link, & Chukharev-Hudilainen, 2017). AI was noted as particularly useful for teachers in pivoting to higher-order concerns of writing, such as coherence and style, as the automation of grammar offered a release from the more fundamental concerns. Connection to Introduction: This finding refers back to the literature review that described AI as a "game-changing resource" in education (Luckin et al., 2016; Zawacki-Richter et al., 2019). The AI provided adaptive, personalized feedback and filled the instructional void left not only by rote grammar teaching but also by interactive methods such as games.

3.2 Enhanced Self-Correction and Autonomy

Students' self-initiated error correction turned out to be more self-assertive. They revised drafts to the point of self-encountered error correction and only needed to be told the problems after trying to fix it themselves. This established a more self-reliant approach to learning because the trivial corrections and guidance needed from the teachers was recalibrated to the point where the recalibrated, and self-guided, corrections were the only corrections needed to be flagged. This finding refers back to the shift in pedagogy mentioned in the introduction, characterized by a transition from teacher correction to self-autonomy. AI, by taking the responsibility off the games and returning it to the students, aligns with the autonomy-building goals of games but adds the advantage of precision.

3.3 Grammatical Awareness and Accuracy

Improvement in sample writing demonstrated a superior grasp of grammar. Initial drafts were riddled with and later assignments contained reference to the previously mentioned errors of the subject-verb agreement. The students received AI feedback on the grammar rules repeatedly, which, in turn, verified the feedback was AI constructive. Relation to Introduction: This addresses the enduring issue in second language acquisition research where exposure does not guarantee grammar mastery. The AI's almost real-time feedback provided a stronger means in enhancing learners' awareness and precision.

3.4 Motivational and Engagement Increment

Learners showed elevated engagement in their writing activities and motivation to make revisions on their drafts. The AI feedback's interactive character stimulated learners to regard writing as a process rather than a single event submission. Tool use and error correction in peer discussions provided a collaborative grammar practice dimension. Relation to Introduction: This reflects the documented effects of grammar games in literature, where motivation and engagement were enhanced. However, unlike the games, the engagement with AI was accompanied with tangible improvements in accuracy, demonstrating that technology can achieve a blend of engagement and correctness in ways that were not possible with earlier methods.

3.5 Concerns on Creativity and Style

While accuracy in student writing improved, some students relying on AI suggestions produced writing that was excessively homogeneous. Although technically correct, the texts showed a distinct absence of creativity and personal voice as if the writer had disengaged. Students seemed overly preoccupied with the goal of writing "error-free" pieces and neglecting other important aspects such as variation in style and sentence structure. The limitation serves as a confirmation of the concerns in the literature where AI tools, in the absence of other educational approaches, might shrink the communicative horizons of learners (Li, Link, & Hegelheimer, 2015). Connection to Introduction: The

literature review foreshadowed this finding by stating that, while AI and games can foster autonomy and motivation, the uncontrolled use of either, without balance, may reduce one's creativity and the authenticity of communication. As students learn and master more grammatical structures, they may start to shift their focus from AI feedback to more important writing tasks, such as developing a writing style and expressiveness. Yet, if teaching practices do not focus on the reflection of language, the choices and style may cause students to remain over-reliant on AI, even at the beginning of their learning.

3.6 Summary of Findings

Overall, the findings suggest that the use of AI for self-instruction does encourage autonomy with regard to the balancing of work and the improvement of learners' grammatical accuracy. Nevertheless, AI instruction should be paired with other traditional interactive approaches like the use of grammar games. This creates a blended approach where learners can gain grammatical accuracy without stifling intricacy, motivation, and communicative confidence. This blended model speaks to the gap in the research outlined in the introduction - traditional grammar instruction in isolation is inadequate, interactive games serve to enhance motivation but not the accuracy of the learners, and the use of AI increases the accuracy of the learners but may stifle creative expression. Only with the integration of all these elements can grammar instruction in the post-secondary system rise above the entrenched inadequacies. The results point to the fact that the overreliance on AI seems to be a temporary coping mechanism rather than a learning outcome. The AI tools in question assist with the grammar and writing style of learners, but the effects on creativity and stylistic growth seem to be time limited. The extent to which academic writing development relies on AI tools as a temporary support structure or a long-term dependency ultimately hinges on the creativity and style development of learners in subsequent semesters.

4. Conclusion

4.1 Summary of Key Findings

The current study investigated the integration of AI tools and grammar games in the teaching of grammar at Bosowa University. The findings confirm the challenge outlined in the introduction and the literature: university students continue to struggle with the accurate grammatical usage of academic text even after years of exposure (Ellis, 2006; Nassaji & Fotos, 2011). Although grammar games enhanced participation and reduced anxiety, they, by themselves, did not contribute to accurate grammar usage. On the other hand, AI tools were able to fully assist on the students' need for instant, personalized feedback, improving their accuracy and self-correction, and fostering autonomy. Still, overdependence on AI may diminish creativity and design variability (Li, Link, & Hegelheimer, 2015).

4.2 The Pedagogical Impact

The implication of the findings suggests that the challenges of grammar in higher education cannot be resolved with merely conventional grammar instruction, grammar games, or even AI tools alone. A blended pedagogical model must be adopted. AI can be used as a fine tool for autonomy and accuracy, and grammar games can be used to sustain motivation and lessen anxiety, while teacher instruction and feedback provide the creativity and real expression. In this way, the weaknesses of the three isolated approaches will be counter-balanced. The results indicate that AI-supported grammar tools work best when treated as temporary aids and not as definitive corrective authorities. With time and constructive use, AI can help develop both grammatical precision and an individual writing style, if learners are motivated to critically respond to the feedback and take on more ownership for stylistic and rhetorical decisions. To tackle the issues created by depending on AI, there should be the use of technology and intentional pedagogy.

4.3 Limitations

This study is limited by its qualitative case study design and small participant pool of thirteen. Findings stem from the experiences of one university and may not apply to all learners. Furthermore, the work was conducted in just one semester, leaving the long-term impact of AI on the writing development and creativity of learners unattainable.

4.4 Future Directions

Subsequent inquiries should involve a wider range of research subjects and study the implications of AI grammar learning at various institutions and differing learner demographics. This type of research

would provide more insight into the degree of learner independence and creativity that various AI technologies support. Long-term studies are also necessary in this space, to gauge the extent to which students are able to maintain the established levels of grammatical correctness and creativity over a number of semesters. Beyond rote learning, the innovation of grammar instruction in higher learning needs to be proposed. Innovative and interactive methods that incorporate AI guidance will ensure a positive instructional shift. Adopting such a combined model will place higher learning at the AI technology cutting edge and offer students grammar learning that is more reflective of real academic work. In doing so, the challenge of more advanced and precise writing will be eliminated.

5. References

- Ardi, D. S. (2018). *Learning mathematics in a mobile app-supported math trail environment*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-93245-3>
- Chen, C. F. E., & Cheng, W. Y. E. (2008). Beyond the design of automated writing evaluation: Pedagogical practices and perceived learning effectiveness in EFL writing classes. *Language Learning & Technology*, 12(2), 94–112.
- Chen, Y. (2020). Enhancing language acquisition: The role of AI in facilitating effective language learning. [Journal name not provided].
- Deesri, A. (2002). Games in the ESL and EFL class. *The Internet TESL Journal*, 8(9).
- Ellis, R. (2006). Current issues in the teaching of grammar: An SLA perspective. *TESOL Quarterly*, 40(1), 83–107.
- Hoch, M., & Dreyfus, T. (2006). Structure sense versus manipulation skills: An unexpected result. In J. Novotna, H. Moraova, M. Kratka, & N. Stehlikova (Eds.), *Proceedings of the 30th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 305–312). PME.
- Li, Z., Link, S., & Hegelheimer, V. (2015). Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction. *Journal of Second Language Writing*, 27, 1–18.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
- McKenney, S., & Reeves, T. C. (2014). Educational design research. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 131–140). Springer. https://doi.org/10.1007/978-1-4614-3185-5_11
- Nassaji, H., & Fotos, S. (2011). *Teaching grammar in second language classrooms: Integrating form-focused instruction in communicative context*. Routledge.
- Nurmuratova, X. (2024). Enhancing English language teaching effectiveness through integrated technology. *Uzmu Xabarlari*.
- Ranalli, J., Link, S., & Chukharev-Hudilainen, E. (2017). Automated writing evaluation for formative assessment of L2 writing: Investigating the potential of the Criterion® service. *Language Learning & Technology*, 21(1), 59–79.
- Son, J., Ružić, N., & Philpott, A. (2025). Artificial intelligence technologies and applications for language learning and teaching. *Journal of China Computer-Assisted Language Learning*, 5(1), 94–112. <https://doi.org/10.1515/jccall-2023-0015>
- Sudirman, A., Sispiyati, R., & Chin, K. E. (2021). An investigation of students' algebraic proficiency from a structure sense perspective. *Journal on Mathematics Education*, 12(1), 147–158. <https://doi.org/10.22342/jme.12.1.13125.147-158>
- Turdaliyevna, B. B. (2024). Using artificial intelligence technologies in language teaching. *International Journal of Literature and Languages*.
- Ulfa, K. (2023). The transformative power of artificial intelligence (AI) to elevate English language learning. *Majalah Ilmiah METHODODA*.
- Umar, U. (2024). Advancements in English language teaching: Harnessing the power of artificial intelligence. *FLIP: Foreign Language Instruction Probe*.
- Wright, A., Betteridge, D., & Buckby, M. (2005). *Games for language learning* (3rd ed.). Cambridge University Press.
- Wulandari, D. A., Putry, V. U., Rahmadani, F. N., & Pohan, E. (2024). Trend issues in the use of technology in EFL contexts. *EDUJ: English Education Journal*.
- Yolageldili, G., & Arikan, A. (2011). Effectiveness of using games in teaching grammar to young

learners. *Elementary Education Online*, 10(1), 219–229.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1–27.

Zhang, J., Zhu, C., & Zhang, Z. (2024). AI-powered language learning: The role of NLP in grammar, spelling, and pronunciation feedback. *Applied and Computational Engineering*, 102(1), 18–23. <https://doi.org/10.54254/2755-2721/102/202409>