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Exploring Sentence Structure and Grammatical Consistency in AI-Written Essays

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Abstract

Artificial intelligence (AI) systems, including tools like ChatGPT and Gemini. Have become increasingly prevalent in the generation of written academic texts, particularly essays. This research focused on sentence sructure and grammatical consistency in essays generated by artifical intelligence (AI) in academic English. The research used descriptive qualitative method to describe how AI constructed sentences and applied grammatical rules in essays. There are five essays were generated by an AI tool using academic prompts, and each was analyzed based on sentence types (simple, compound, complex, and compound-complex) and grammatical consistency (tense usage, subject-verb agreement, and punctuation). The results were expeced to reveal patterns in syntactic construction, highlight strengths and weaknesses in AI-generaed grammar, and provided insights into the reliability of AI for academic writing tasks. The research contributed to discussed in applying linguistics, language education, and using of AI in academic contexts.

Keywords: *AI-generated writing, Grammar, Sentence Structure*

Introduction

Recent advancements in artificial intelligence (AI), particularly through generative models like ChatGPT, has notably influenced academic writing practices. A primary academic concern is whether AI-generated texts exhibit sufficient grammatical accuracy and syntactic clarity. While AI can replicate human like language, its ability to maintain consistent cohesion and coherence at the syntactic level remains in question (Bisk dkk., 2020)

The discourse among scholars become increasingly dynamic when evaluating AI's ability to generate complex syntactic constructions. Although certain studies indicate that AI can successfully produce both compound and complex sentences (Vaswani dkk., t.t.). In syntactic perspective, structures like subordinate clauses, relative clauses, and passive forms are frequently absent or used unnaturally in AI-generated texts, leading to questions regarding the depth of the systems's linguistic competence (Taghipour & Ng, 2016). In addition, AI assisted learning can incorporate automated feedback on various aspects of writing, including effectiveness, content organization, coherence, grammar, and vocabulary, facilitating students' writing performance (Song & Song, 2023)

A central concern in applied linguistic research involves assessing the extent to which AI adheres to grammatical conventions with consistency. (Hirst, 2006) argues that grammatical consistency encompasses the correct use of verb tenses, accurate subject-verb agreement, and the application of parallel construction. Several studies have identified that AI frequently commits grammatical errors, including mismatched agreement and improper tense transitions. Through a corpus linguistics approach, scholars are able to conduct empirical comparisons between AI-generated essays and those written by humans. Analytical tools like AntCons and Coh-Metrix facilitate the examination of features such as sentence length, the frequency of conjunctions, and the clarity of referential expressions. According to (Chen

dkk., 2021), AI-generated texts exhibit lexical patterns that deviate from those found in human-authored writing, often relying on predictable and standardized constructions. This indicates that AI still lacks comprehensive control over pragmatic variation in language use.

Previous research was conducted by (Bouziane & Bouziane, 2024), the research aims to assess the accuracy, efficiency, and cost-effectiveness of ChatGPT's essay correction compared to human correction, with a primary focus on identifying and rectifying grammatical errors, spelling, sentence structure, punctuation, coherence, relevance, essay structure, and clarity. The findings indicate that ChatGPT performs exceptionally well in core aspects of language use, particularly in grammar, spelling, sentence construction, relevance, and the provision of supporting details. Nonetheless, human evaluators still demonstrate greater proficiency in maintaining thematic coherence throughout a text. These results highlight the value of a collaborative approach that combines the strengths of both AI and human assessment to achieve a more thorough and effective process of essay evaluation.

The other previous research was conducted by (Malik dkk., 2023), the rapid integration of Artificial Intelligence (AI) into educational settings has significantly influenced academic writing practices, particularly among university students. As AI-powered tools become more accessible, students increasingly rely on them for grammar correction, plagiarism detection, translation, and generating essay outlines. A recent study involving 245 undergraduate students from 25 higher education institutions across Eastern and Central Indonesia revealed generally positive attitudes toward AI in academic writing. Students reported that AI enhances their writing abilities, boosts self-efficacy, and improves their understanding of academic integrity.

The integration of Artificial Intelligence (AI) into academic essay writing

has emerged as a significant development in contemporary education. AI technologies, with their adaptive learning mechanism and linguistic capabilities, offer innovative tools that support and enhance various stages of the writing process. From generating topic ideas to refining grammar, structure, and citation accuracy, AI provides students with responsive, individualized assistance. At the same time, academic writing demands rigorous standards—clarity of expression, logical organization, critical reasoning, and adherence to ethical scholarship—which AI systems can help facilitate and reinforce. This convergence not only streamlines the learning experience but also contributes to bridging linguistic and cultural gaps, thereby enabling more coherence and well-substantiated academic arguments. As AI becomes increasingly embedded in educational practices, understanding its role in shaping academic writing is essential for ensuring meaningful and responsible uses in higher education.

Taking into account the earlier discussion, the present study aims to examine the sentence structure and grammatical consistency of academic English essays generated by Artificial Intelligence (AI). Specifically, it seeks to analyze how AI constructs syntactic patterns and applies grammatical rules in comparison to the standards expected in academic discourse.

Method

The research employs a descriptive qualitative research design to explore the syntactic and grammatical features of AI-written academic essays. The data consists of a purposive sample of essays generated by an AI language model, such as ChatGPT on selected academic topics. Each essay will be analyzed using a syntactic analysis framework that includes categories such as simple, compound, complex, and compound complex sentence types. Grammatical consistency will be evaluated based on parameters such as tense accuracy, subject-verb agreement, and parallel structure. The data

analysis will focus on two main linguistic dimensions. They are syntactic structure, it categorized into simple, compound, complex, and compound-complex sentences. Grammatical consistency, it is evaluated based on verb tense usage, subject-verb agreement, and parallel structure.

Results

The analysis of essays produced by AI uncovered distinct trends concerning sentence structure and grammatical regularity. The analyzed samples indicated a predominant use of simple and compound sentence forms. Although complex and compound-complex constructions were identified, their occurrence was comparatively limited and tended to lack structural diversity.

From a syntactic perspective, AI-generated essays demonstrate a solid grasp of foundational sentence construction. The use of coordinating conjunctions such as *and*, *but*, and *because* was largely appropriate, with minimal occurrences of sentence fragments or run-on sentences. However, the recurrent reliance on predictable patterns most notably those following a subject-verb-object configuration highlighted a noticeable lack of syntactic variety, which may hinder the richness and flexibility expected in academic prose.

In terms of grammatical consistency, the majority of the analyzed essays maintained accurate use of verb tenses, consistent subject-verb agreement, and correct word order. Automated tools such as Grammarly and AntConc reported relatively few grammatical inaccuracies throughout the corpus. Nonetheless, minor inconsistencies involving pronoun agreement and parallel structure were occasionally identified. Moreover, although the overall grammatical performance was commendable, certain constructions lacked idiomatic naturalness or contextual relevance, thereby affecting the

textual fluency and pragmatic appropriateness of the writing. A syntactic structure analysis and grammatical consistency in essay of academic topics “The Impact of Artificial Intelligence on Higher Education” can be seen in the table below;

Table. 1 Sentence Structure Analysis

No	Sentence Excerpt	Sentence Types	Explanation
1	"AI is transforming higher education"	Simple	Single independent clause
2	"AI supports personalized learning, and it helps reduce dropout rates."	Compound	Two independent clauses joined by and
3	"Although AI can enhance student engagement, it may also affect academic integrity."	Complex	Begins with subordinate clause Although AI can..., followed by main clause
4	"As AI becomes more embedded in the classroom, the role of the educator is shifting..."	Complex	Dependent clause with as, followed by independent clause
5	"AI offers many benefits, but it must be used responsibly, and educators must remain involved..."	Compound-complex	Two independent clauses and one dependent clause with but and and

Table. 2 Grammatical Consistency Analysis

No	Aspects	Examples	Analysis
1	Tense consistency	Present simple: "AI offers... AI supports..." Present perfect: "has reshaped..."	Consistent use of present and present perfect for current trends.
2	Subject-verb agreement	"AI technologies offer..." "The role of the educator is shifting..."	Subjects and verbs agree in number and person.
3	Parallel structure	"...clarity, structure, critical reasoning, and adherence..." "...formulating titles, composing abstracts..."	Parallel grammatical forms used in lists.
4	Pronoun agreement	No incorrect shifts like "each student... their..."	Proper academic style maintained.

5	Tone and formality	Uses formal academic tone, no contractions or informal phrasing	unappropriate tone for academic essays.
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Discussion

The results of this study are consistent with earlier research indicating that artificial intelligence (AI) systems particularly large language models such as ChatGPT, tends to perform effectively in handling surface-level grammatical accuracy and sentence formulation (Leacock dkk., 2010). The AI-generated texts analyzed adhered to fundamental grammatical conventions and demonstrated a reasonable degree of syntactic coherence. Although AI demonstrates strength in producing grammatically accurate text, its restricted range of sentence structures suggests a limitation in mirroring the complexity of human syntax. According to (Taghipour & Ng, 2016), variation in sentence construction serves as a significant marker of writing quality, particularly within academic contexts.

In the balance between human-authored writing and AI-generated, the research discussed that the distinctive strengths of human compositions become evident-particularly in their nuanced one, lexical diversity, and effective use of rhetorical strategies. While AI-generated writing serves as a practical tool for specific academic tasks, the research demonstrates that it still falls short in capturing the depth and individuality characteristic of human academic expression.

These limitations highlight the importance of maintaining authenticity and integrity within academic discourse. As technology continues to evolve, it is essential for educators and institutions to critically understand the linguistic boundaries of AI, especially in higher education settings where critical thinking and personal academic voice are highly valued. The findings of this research, which underscore the limitations of AI in producing sophisticated and original academic texts, are consistent with

previous research. Therefore, while AI can act as a supportive resource in academic writing, the development of genuine writing skills should remain a central objective in educational practice.

Conclusion

This research investigated the syntactic composition and grammatical reliability of essays created by artificial intelligence, with a specific focus on generative language models like ChatGPT. The findings indicate that AI-generated texts tend to exhibit strong grammatical precision, particularly in areas such as tense consistency, subject-verb agreement, and correct word order. AI is also capable of constructing simple and compound sentences effectively, resulting in writing that appears cohesive and readable at the surface level.

However, the research also found that AI still exhibits limitations in terms of syntactic variation. The sentence patterns employed tend to be repetitive and lack the syntactic depth typically observed in human-authored academic writing. The infrequent use of relative clauses, passive constructions, and embedded clauses in AI-generated text reduces the stylistic richness and argumentative strength of the writing.

Therefore, although AI holds great potential in supporting academic writing processes, its use should be approached with discernment and guided by critical awareness. The integration of AI in writing instruction should aim to enhance students' syntactic and grammatical competence, rather than simply replacing human cognitive and linguistic processes.

The findings indicate that depending solely on AI-generated content does not automatically enhance the students' essays quality. Educators should be encouraged to adopt a critical approach when assessing written work, taking into account elements like personal expression, subtlety, and

lexical variation. In addition, educational institutions should design tasks and learning activities that support the development of students' individual writing styles, promote mastering vocabulary, and foster the articulation of complex ideas with depth and clarity.

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