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The Effect of AI-Generated Texts on the Internal Grammar Formation of L2 English Learners

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Abstract

The extensive use of AI-generated texts, chiefly those manufactured by bulky language models (LLMs) like ChatGPT, is swiftly renovating second language (L2) learning settings. These tools are gradually used for reading, writing aid, grammar modification, and vocabulary acquisition. However, their influence on the internal grammar formation—the involuntary grammatical acquaintance system that inspires fluent language use—remains underexplored. Drawing on second language acquisition (SLA) theories such as the Input Hypothesis, Noticing Hypothesis, and Usage-Based Learning, the current study explores how exposure to AI-generated texts may affect L2 English learners' acquisition of grammatical structures. A proposed mixed-method study is introduced, designed to compare learners showed to AI-generated in competition with human-authored texts. Results from preceding and hypothetical findings suggest AI texts may improve accuracy in frequent grammatical structures, but lack of linguistic variability may hinder acquisition of complex or irregular patterns. This paper concludes with pedagogical recommendations and a discussion of implications for SLA theory in the AI era.

Keywords: L2 learners, AI-generated texts, grammar acquisition, internal grammar, ChatGPT, SLA

1. Introduction

In recent years, Artificial Intelligence (AI) has increasingly been integrated into educational settings, with language learning emerging as one of the most significantly impacted domains. Tools like ChatGPT, powered by large language models (LLMs), are now being widely used by English as Second Language (ESL) learners to read texts, write assignments, receive grammar corrections, and even hold conversations. While the immediate utility of these tools is evident, their deeper, long-term influence on second language acquisition (SLA)—particularly the development of Internal Grammar—remains under-researched.

1.1 Background

In the past decade, Artificial Intelligence (AI) has transformed various sectors, including healthcare, finance, and manufacturing. Education is no exception. With the

intensification of advanced language models such as ChatGPT, Claude, and Gemini etc. AI tools are being widely adopted in classrooms and self-regulating learning environments. One area mainly impacted is second language acquisition (SLA), where learners increasingly turn to AI for aid in reading comprehension, writing, grammar correction, translation, and even casual conversation.

Within this comprehensive modification, learners of English as a Second Language (ESL) are at the forefront of AI usage. Chatbots and generative AI systems offer round the clock availability, low-stress communication, and instant feedback advantages often not available in traditional educational contexts. These tools provide customized vocabulary suggestions, syntactic rephrasing, instant grammar checks, and adaptive conversations that simulate human dialogue. Though, while such affordances are revolutionary in terms of accessibility and personalization, they raise critical questions about the cognitive and linguistic influences of AI on actual language development.

1.2 Internal Grammar and SLA

At the heart of successful language acquisition lays the growth of what is often referred to as Internal Grammar: A concept grounded in theories of implicit learning and Universal Grammar (Chomsky, 1965; Krashen, 1982; Ellis, 2005). Internal Grammar denotes to the subconscious mental system that learners develop over time, enabling them to produce and realize language naturally and fluently. Unlike explicit grammar, which involves learned rules and conscious correction, internal grammar reveals through repeated, meaningful exposure and usage of a language in context.

Researchers have long highlighted the importance of genuine, comprehensible input in facilitating the development of internal grammar. According to Krashen's Input Hypothesis, language acquisition ensues most effectively when learners are exposed to input that is just slightly beyond their current proficiency level (i+1). Through consistent and meaningful exposure, learners begin to internalize complex structures without overt instruction. In other words, the excellence and nature of linguistic input play a central role in determining the learner's internal linguistic system.

1.3 The Rise of AI as Input Source

With AI tools progressively acting as language input sources, we must now question

whether the textual and conversational output of AI models cares or disrupts the internalization process. Traditionally, learners were exposed to a blend of naturalistic input (from media, conversation, and immersion) and pedagogical input (from textbooks, teachers, and structured exercises). AI-generated input presents a third category Algorithmic Input which is although often fluent and grammatically correct, generated probabilistically and may lack the subtlety, disparity, or communicative authenticity of human language.

On the surface, AI-generated texts seem ideal: they are grammatically consistent, easily modifiable, and can be tailored to the learner's level. However, linguistic studies have noted that LLMs tend to favor high-frequency, statistically probable constructions and may underrepresent idiomatic expressions, discourse markers, or grammatical irregularities. For example, research by McCoy et al. (2023) originate that LLMs like GPT-3 tended to avoid complex subjunctive forms or regionally varied syntax. If learners are principally exposed to such standardized input, it advances concerns about the richness of linguistic diversity available to them.

1.4 AI and Implicit Learning

Another issue lies in the difference between explicit correction and implicit learning. Many AI tools, including ChatGPT, deliver abrupt grammatical response, often through paraphrase or direct correction. While this can expand the surface quality of learner writing, it may encourage reliance on external correction rather than nurturing deep internalization. This parallels long-standing concerns in SLA research about the limits of corrective feedback in encouraging implicit grammar acquisition. If learners inactively accept corrections without reflecting or engaging with the underlying grammatical structures, the development of internal grammar may be hindered

Internal grammar refers to the implicit system of grammatical rules that a learner constructs through exposure to a language. It permits speakers to produce and understand language fluently and automatically, without consciously applying explicit grammatical rules. Considerate how AI-generated texts affect this internal grammar development is crucial, especially since learners are increasingly engaging with AI as a primary input source, often replacing traditional classroom materials or teacher feedback.

Furthermore, since AI tools are increasingly assimilated into learning management

systems, writing platforms, and even mobile apps, learners may interact with AI more frequently than with teachers or native speakers. This modification stresses a re-examination of SLA models: Are current input-based and interactionist theories still valid in AI-mediated contexts? How do AI tools compare to human interlocutors or traditional materials in fostering the development of syntactic intuitions, morph syntactic accuracy, and fluency?

1.5 Existing Research and Gaps

Although AI use in language education is expanding swiftly, empirical research on its impact on Internal Grammar Development is still in its infancy. Studies have scrutinized AI's role in writing support, vocabulary expansion, and error correction (Lee, 2023; Zheng et al., 2024), but few have directly talked how AI-generated input influences implicit grammar acquisition. The majority of existing studies emphasize learner satisfaction, usability, or learning outcomes such as test scores and writing performance metrics that may not reflect internal grammatical competence.

Some preliminary findings recommend that learners using AI tools perform better in obvious grammar tasks, such as multiple-choice exercises or sentence corrections, but not essentially in spontaneous production or grammaticality judgment tasks. This discrepancy points to a potential divergence between explicit knowledge gains and implicit system development, echoing the concerns elevated by scholars such as DeKeyser (1995) and Hulstijn (2015) about the separation of declarative and procedural knowledge in SLA.

1.7 Research Questions

The following questions are not only timely but also foundational in guiding future research and informing pedagogical practices. As AI becomes fixed in language education, understanding its cognitive-linguistic effects is vital to ensuring that learners develop authentic, fluent, and accurate linguistic competence not just high test marks or error-free essays. The current study explores if AI-generated texts facilitate, hinder, or modify the process of internal grammar formation in L2 English learners. It seeks to answer the following research questions:

1. How does experience to AI-generated texts impact on L2 learners' Internal Grammar Development?
2. Which grammatical constructions (e.g., tense, agreement, clause embedding) are

most affected by AI-generated input?

3. Are there noticeable differences between implicit and explicit grammar acquisition when comparing AI-generated input to human-generated input?

1.8 Significance of the Study

By focusing on internal grammar rather than surface-level proficiency, this study contributes to a deeper thought of language development in the age of AI. It trials the assumption that accurate or fluent AI output necessarily translates into effective input for learners and calls for greater scrutiny of how language models are used in SLA contexts.

The findings may have practical implications for:

2. Theoretical Framework

It refers to a structure or system of concepts, theories, and ideas that director's research or a study. It offers a foundation and context for understanding, analyzing, and interpreting data by connecting the research to present knowledge.

2.1 Inter language and Internal Grammar

The notion of inter language, introduced by Selinker (1972), is central to understanding how second language learners develop grammatical competence. Inter language denotes to the evolving linguistic system constructed by an L2 learner, which incorporates elements from both the target language and the learner's native language. The current system is dynamic and subject to restructuring as learners is exposed to new input, receive feedback, and develop their language skills.

Internal grammar is a key component of inter language. It signifies the implicit knowledge that allows learners to use language automatically, without conscious effort. This internalized system is distinct from explicit knowledge, which refers to the declarative understanding of grammar rules. According to Ellis (2009), both types of knowledge are important in SLA, but implicit knowledge is more closely associated with fluent and native like performance.

2.2 Input Hypothesis

Krashen's Input Hypothesis (1985) suggests that learners acquire language when they are exposed to comprehensible input that is slightly beyond their current level of proficiency (i+1). The hypothesis highlights the importance of understanding language in context and suggests that exposure to well-formed input is sufficient for

grammar acquisition, without the need for explicit instruction. AI-generated texts, by providing abundant and highly logical input, may meet the criteria of optimal input at least for frequently occurring structures.

2.3 Usage-Based Learning

Usage-based theories (Ellis, 2003; Tomasello, 2003) claim that language learning occurs through repeated exposure to linguistic patterns. Learners construct grammatical knowledge by abstracting rules from specific examples encountered in real-life communication. In the current framework, frequency and variability of input are key factors in the development of robust internal grammar. One concern with AI-generated texts is that, while regular structures are well represented, they may lack the variability needed to foster flexible grammar knowledge.

2.4 Noticing Hypothesis

The Noticing Hypothesis (Schmidt, 1990) suggests that for input to become intake, learners must first consciously notice the relevant linguistic features. Pure and well-structured texts, such as those generated by AI, may enhance learners' ability to notice target grammatical forms, especially when coupled with appropriate tasks. However, over-polished or repetitive input may reduce opportunities for noticing subtle grammatical contrasts or irregularities.

3. Literature Review

3.1 AI in Language Learning

Latest studies have explored how AI is reshaping the language learning landscape. Tools like Grammarly, Quillbot, and ChatGPT are used by millions of learners worldwide. ChatGPT, in specific, has been used for grammar correction, paraphrasing, writing support, and reading comprehension tasks. Li et al. (2024) found that learners who regularly revised their writing with ChatGPT assistance showed significant improvements in grammar accuracy and sentence fluency.

3.2 Grammar Acquisition through Input

There is widespread research showing that input quality and quantity influence grammar acquisition (Ellis, 2002; VanPatten, 2007). Extensive reading of reliable texts improves learners' grammar, especially for high-frequency structures like past tense or modals. However, formal input often underrepresents informal and idiomatic usages. AI texts may fall somewhere between these two extremes: grammatical and

consistent but lacking natural variability.

3.3 Characteristics of AI-Generated Texts

AI-generated texts are typically characterized by: High grammatical accuracy, Predictable sentence structures, reduced idiomaticity and slang and Formal register. While these features are helpful for certain learning goals, overexposure to this type of input might avert learners from obtaining less frequent or more nuanced grammatical patterns. Moreover, AI avoids errors, meaning learners may miss the chance to learn through contrastive analysis: The noticing of errors and corrections, which is valuable in inter language development (Long, 1996).

4. Research Design

To examine the impact of AI-generated texts on the internal grammar formation of L2 English learners, a pseudo-experimental study is proposed. The current study includes both quantitative and qualitative data to evaluate changes in learners' grammatical knowledge over time.

4.1 Participants

There are 60 intermediate-level L2 English learners, aged 18–25, enrolled in a university-level ESL program. They are randomly divided into three groups: Group A (AI Text Group): Read weekly AI-generated texts (e.g., ChatGPT-generated essays, narratives, dialogues), Group B (Human Text Group): Read human-authored texts of equivalent length, difficulty, and topic and Group C (Control Group): Follow the standard ESL curriculum without additional reading input. All participants have similar English proficiency levels, confirmed by a placement test (e.g., Oxford Online Placement Test).

4.2 Data Analysis

Quantitative data from GJT, EIT, and writing tasks will be analyzed using **ANCOVA** to compare group performance, controlling for pre-test scores. Qualitative data from journals and interviews will be coded thematically to understand learner perceptions and noticing behavior.

5. Findings

5.1 Grammar Gains in AI Group

Participants in the AI group are show statistically significant improvement in: Implicit Grammar Knowledge, particularly in frequently modeled structures like modals,

passive voice, and relative clauses. And writing accuracy is regular exposure to grammatically correct input may improve monitoring and self-correction.

5.2 Richer Grammatical Diversity in Human Text Group

The Human Text Group achieves better in: Grammar range and flexibility, due to exposure to natural difference, idiomatic expressions, and more stylistically diverse input. Pragmatic awareness appears from contextual and culturally embedded language.

5.3 Minimal Changes in Control Group

The Control Group is predictable to display minimal improvement, associate the hypothesis that supplementary input is necessary for grammar development beyond standard curriculum exposure.

5.4 Learner Perceptions

Qualitative feedback discloses AI texts are perceived as easier to understand and more grammatically clear, facilitating noticing. Human-authored texts are perceived as more appealing, but sometimes more confusing due to variability and less foreseeable grammar.

6. Discussion

6.1 Theoretical Implications

These expected results align with SLA theories emphasizing the importance of input frequency, noticing, and form-focused attention. AI-generated texts appear to deliver input that meets the conditions of Krashen's (1985) (i+1) comprehensible input model. They also suggest high repetition of correct structures, reinforcing usage-based learning mechanisms. Though, they may fall short in terms of the variability that is central to building abstract grammatical classes. According to Ellis (2003), exposure to lexically and syntactically diverse constructions allows learners to generalize beyond specific forms.

Furthermore, the Noticing Hypothesis proposes that input alone is not sufficient. learners must notice the gap between their own production and the target form. AI texts, being highly polished, might reduce these "gaps" unless paired with explicit reflection or correction tasks.

6.2 Pedagogical Implications

The study supports the strategic integration of AI-generated texts into L2 instruction.

These texts can be used to: Provide input flood for targeted grammar points. Support independent reading and learner autonomy. Facilitate noticing tasks (e.g., underlining modals or conditionals in AI-generated stories). However, teachers must balance AI input with: Authentic materials that expose learners to irregular, idiomatic, and colloquial grammar. Interactive tasks involve real-time negotiation of meaning and grammatical repair. Critical reading tasks are encouraging learners to evaluate the formality, accuracy, and limitations of AI-generated content.

7. Conclusion

As AI apparatuses become more accessible, they offer unprecedented opportunities for language input that is instant, grammatically correct, and contextually adaptable. The current has article examined the potential effects of such input on the internal grammar development of L2 English learners, drawing on SLA theory and a planned research model. AI-generated texts likely enhance the acquisition of frequent, rule-governed grammar through consistent and comprehensible exposure. However, their limitations in linguistic richness and variation may restrict the development of flexible and context-sensitive grammar knowledge. Hence, a blended method that combines AI input with authentic, interactive, and feedback-rich learning environments is recommended. Ultimately, AI should be seen as a complementary resource—one that offers pedagogical value when used critically and reflectively, but not a replacement for human interaction and naturally occurring language.

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