LINGUISTIC ADAPTATION OF AI-GENERATED ENGLISH ACADEMIC TEXTS FOR EFL SECONDARY SCHOOL LEARNERS IN UZBEKISTAN

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Abstract. *This thesis examines the linguistic adaptation of AI-generated English academic texts for secondary school learners studying English as a foreign language (EFL) in Uzbekistan. While generative artificial intelligence can rapidly produce academically styled texts on a wide range of topics, such materials may contain lexical, syntactic, and discourse features that exceed learners' current language proficiency. Therefore, AI-generated texts require pedagogically informed adaptation before being integrated into secondary school EFL instruction. The study focuses on key dimensions of linguistic adaptation, including lexical complexity, sentence structure, academic vocabulary, information density, textual cohesion, and overall readability. Particular attention is given to maintaining a balance between simplifying linguistically demanding elements and preserving the academic characteristics of the original text. The analysis considers such adaptation strategies as replacing low-frequency vocabulary, explaining essential academic terms, restructuring syntactically complex sentences, reducing unnecessary information density, and improving cohesive links between ideas. The study argues that linguistic adaptation should not be understood as merely making a text easier; rather, it should make academic input accessible while retaining meaningful exposure to academic English. In the context of secondary education in Uzbekistan, the effectiveness of AI-generated materials therefore depends on their alignment with learners' proficiency levels, instructional objectives, and the linguistic demands of classroom tasks. The findings provide a conceptual basis for the systematic adaptation and pedagogically responsible use of AI-generated academic texts in EFL secondary school classrooms.*

Keywords: *artificial intelligence, generative AI, AI-generated text, linguistic adaptation, academic text, EFL, secondary school learners, academic vocabulary, lexical complexity, syntactic complexity, Uzbekistan.*

INTRODUCTION

The rapid development of generative artificial intelligence has created new possibilities for producing and adapting instructional materials in English language education. AI-based tools can generate texts on almost any academic topic within seconds and can vary their length, structure, and level of detail. For secondary school EFL teachers, this offers a potentially efficient way to prepare reading materials that correspond to classroom topics and learning objectives. However, the fact that a text is grammatically correct and academically styled does not necessarily mean that it is linguistically appropriate for school learners.

AI-generated academic texts often contain relatively dense information, low-frequency vocabulary, abstract nouns, nominalized structures, complex clause patterns, and discourse features that are more typical of advanced academic writing. Such characteristics may create difficulties for secondary school learners whose English proficiency is still developing. If the linguistic demands of a text substantially exceed learners' competence, the material may reduce comprehension, increase cognitive load, and limit meaningful engagement with the content. For this reason, AI-generated texts frequently require purposeful linguistic adaptation before they can be used effectively in EFL classrooms.

Linguistic adaptation refers to the systematic modification of a text in order to make its language more accessible to a target group of learners while preserving its essential meaning, communicative value, and academic characteristics. In the context of AI-generated academic texts, adaptation may involve changes at several levels. At the lexical level, teachers may replace unnecessary low-frequency words, provide explanations for essential academic terms, or reduce lexical density. At the syntactic level, long and structurally complex sentences may be divided or reorganized. At the discourse level, cohesion can be improved through clearer referencing, logical sequencing, and more explicit connections between ideas.

A central challenge in this process is maintaining an appropriate balance between accessibility and authenticity. Excessive simplification may remove important academic language features and deprive learners of useful exposure to the linguistic patterns they are expected to encounter in later stages of education. In contrast, insufficient adaptation may leave the material too difficult for learners to process effectively. Therefore, the objective of linguistic adaptation should not be to make a

text as easy as possible, but to make it manageable for learners while preserving selected features of academic English that have instructional value.

This issue is particularly relevant in the context of secondary education in Uzbekistan. English is taught as a foreign language, and learners may differ considerably in vocabulary size, grammatical competence, reading experience, and familiarity with academic discourse. A single AI-generated text may therefore be suitable for one group of learners but too demanding for another. Effective use of AI-generated academic materials requires teachers to consider learners' proficiency levels, curriculum objectives, topic familiarity, and the specific linguistic demands of the task in which the text will be used.

In this respect, AI should not be viewed as an autonomous provider of ready-made educational content. Rather, it should be treated as a text-generation resource whose output requires professional evaluation and adaptation. The teacher remains responsible for determining which linguistic elements should be retained, modified, explained, simplified, or removed.

The adaptation process can be represented through the following sequence:

AI-GENERATED ACADEMIC TEXT → LINGUISTIC ANALYSIS → ADAPTATION → LEVEL-APPROPRIATE ACADEMIC INPUT → CLASSROOM USE

Within this sequence, linguistic analysis serves as the key stage linking AI output with learners' actual language needs. It enables the teacher to identify possible mismatches between the linguistic characteristics of a generated text and the proficiency level of the target learners.

The aim of this study is to examine the major linguistic dimensions involved in adapting AI-generated English academic texts for EFL secondary school learners in Uzbekistan, with particular attention to lexical complexity, syntactic structure, academic vocabulary, information density, cohesion, and readability. The study also seeks to identify practical adaptation strategies that can make AI-generated texts more accessible without eliminating their academic value.

RESEARCH MATERIALS AND METHODS

This study employed a qualitative and conceptual research design to examine the linguistic adaptation of AI-generated English academic texts for EFL secondary school

learners in Uzbekistan. The primary focus was placed on identifying the linguistic features that may make AI-generated academic texts difficult for school-age learners and on systematizing the adaptation strategies that can be used to make such texts more accessible without substantially reducing their academic value.

The study was based on the analysis of AI-generated academic texts and relevant principles of EFL material adaptation. The analytical framework included six major dimensions: lexical complexity, syntactic complexity, academic vocabulary, information density, textual cohesion, and readability. These dimensions were selected because they directly influence learners' ability to process, understand, and use academic English texts in classroom settings.

The first analytical dimension was lexical complexity. AI-generated texts were considered in terms of the frequency, familiarity, and functional importance of lexical items. Particular attention was paid to low-frequency words, technical terms, abstract vocabulary, and multiword academic expressions. The adaptation process involved distinguishing between vocabulary that could be simplified and vocabulary that should be retained because of its instructional or academic importance.

The second dimension was syntactic complexity. Long sentences, embedded clauses, passive constructions, multiple subordinate structures, and heavily nominalized expressions were treated as potential sources of difficulty. Adaptation at this level included sentence segmentation, clause restructuring, reduction of unnecessary syntactic embedding, and the replacement of excessively compressed academic structures with clearer alternatives.

The third dimension concerned academic vocabulary. Since academic texts are expected to expose learners to discipline-neutral and subject-related academic language, the study did not assume that all difficult vocabulary should be removed. Instead, academic lexical items were evaluated according to their relevance to the topic, instructional usefulness, and possible recurrence in future academic learning. Essential terms could therefore be retained and supported through glosses, contextual explanation, or simpler paraphrases.

The fourth dimension was information density. AI-generated academic texts may contain a large amount of information within relatively short passages. This can create difficulties even when individual sentences are grammatically correct. The adaptation process therefore considered whether ideas should be redistributed across shorter

paragraphs, whether secondary details could be reduced, and whether key information could be made more explicit.

The fifth dimension was textual cohesion. Cohesive devices, reference chains, conjunctions, lexical repetition, and logical progression were analyzed to determine whether the relationship between ideas was sufficiently transparent for learners. Where necessary, additional linking expressions or clearer referential forms could be introduced in order to improve the internal organization of the text.

The sixth dimension was readability. Readability was treated not as a single numerical score but as a combined property resulting from lexical, syntactic, and discourse-level features. The appropriateness of the text was therefore considered in relation to the expected proficiency level of secondary school EFL learners rather than through mechanical simplification alone.

The overall adaptation process can be summarized as follows:

AI-GENERATED TEXT → LINGUISTIC DIAGNOSIS → IDENTIFICATION OF DIFFICULT FEATURES → SELECTIVE ADAPTATION → PRESERVATION OF ACADEMIC VALUE → LEVEL-APPROPRIATE TEXT

The following analytical matrix was used to systematize the adaptation process:

Linguistic dimension	Potential problem in AI-generated text	Adaptation strategy
Lexical complexity	Low-frequency or overly abstract vocabulary	Replace, explain, or contextualize
Syntactic complexity	Long sentences and embedded structures	Split or restructure sentences
Academic vocabulary	Essential but unfamiliar terminology	Retain with glosses or paraphrases
Information density	Too many ideas in a limited space	Reduce, redistribute, or prioritize information
Cohesion	Implicit or unclear relationships between ideas	Add clearer connectors and references

Readability	Overall text exceeds learner level	Adjust multiple linguistic features selectively

The study did not treat linguistic adaptation as a fully automated process. Instead, it adopted a teacher-mediated adaptation model, in which AI output is evaluated and revised according to pedagogical objectives and learner needs. In this model, the teacher determines which elements should be retained, simplified, explained, reorganized, or removed.

Thus, the unit of analysis was not only the AI-generated text itself, but the relationship between three components:

AI TEXT → LINGUISTIC FEATURE → ADAPTATION DECISION

This framework makes it possible to examine adaptation as a systematic linguistic and pedagogical process rather than as simple text simplification.

RESULTS AND DISCUSSION

The analysis indicates that the linguistic adaptation of AI-generated academic texts for EFL secondary school learners should be understood as a process of selective modification rather than general simplification. The central issue is not whether an AI-generated text is linguistically correct, but whether its linguistic characteristics correspond to learners' proficiency, instructional objectives, and capacity to process academic discourse.

One of the most significant areas of adaptation is lexical complexity. AI-generated academic texts frequently contain low-frequency words, abstract nouns, technical expressions, and vocabulary that may be appropriate for university-level academic discourse but unnecessarily demanding for secondary school learners. However, replacing every unfamiliar word with a common alternative may reduce learners' exposure to useful academic language. A more appropriate strategy is to distinguish between vocabulary that is essential for understanding the topic and vocabulary that creates difficulty without contributing substantially to the learning objective.

For example:

Original AI-generated sentence:

The proliferation of digital technologies has substantially transformed contemporary educational environments.

A linguistically adapted version may be:

The rapid growth of digital technologies has significantly changed modern educational environments.

In this example, proliferation and transformed are replaced with more accessible expressions, while academically useful words such as digital technologies, significantly, and educational environments are retained. The adaptation therefore reduces unnecessary lexical difficulty without converting the sentence into overly simplified everyday English.

A second major area concerns syntactic complexity. AI-generated academic texts may include long sentences containing subordinate clauses, passive structures, embedded information, and nominalization. Such constructions are characteristic of academic discourse, but their concentration within a single sentence may increase processing demands for secondary school EFL learners.

Consider the following example:

Original AI-generated sentence:

Although digital learning platforms, which have become increasingly widespread in secondary education, provide learners with access to diverse educational resources, their effectiveness depends considerably on how these resources are integrated into classroom instruction.

This sentence can be adapted as:

Digital learning platforms have become increasingly common in secondary education. They provide learners with access to different educational resources. However, their effectiveness depends on how teachers use these resources in classroom instruction.

The central meaning is retained, while the syntactic load is distributed across three sentences. Importantly, the connector however is preserved to maintain the logical relationship between the ideas.

The analysis also highlights the importance of selective retention of academic vocabulary. Certain words should not automatically be removed simply because learners may find them unfamiliar. Terms such as evidence, factor, approach, environment, significant, consequence, and analysis can provide valuable exposure to

academic English. If such vocabulary is relevant to the learning objective, teachers can retain it while providing a short definition, synonym, contextual clue, or glossary.

This produces a useful distinction between two adaptation strategies:

UNNECESSARY DIFFICULTY → SIMPLIFY

INSTRUCTIONALLY VALUABLE DIFFICULTY → RETAIN + SUPPORT

This distinction is important because linguistic adaptation should contribute not only to immediate comprehension but also to the gradual development of learners' academic language competence.

Another relevant finding concerns information density. A text may contain relatively familiar vocabulary and still be difficult because several new concepts are introduced within a short passage. AI-generated texts can compress definitions, causes, consequences, examples, and qualifications into a limited textual space. For secondary school learners, redistribution of this information can improve accessibility without changing the substantive content. Teachers may divide a dense paragraph into smaller units, remove secondary details, introduce examples, or explicitly identify the main idea.

Textual cohesion also requires careful attention. When a text is simplified sentence by sentence, logical relationships can unintentionally be weakened. Therefore, adaptation should preserve or strengthen cohesive devices such as however, therefore, because, in contrast, for example, and as a result. Pronoun references and connections between paragraphs should also remain transparent. Linguistic simplification that produces a series of disconnected short sentences may improve sentence-level readability while reducing text-level coherence.

The relationship between the original feature, adaptation decision, and expected pedagogical effect can be summarized as follows:

Original linguistic feature	Adaptation decision	Expected pedagogical effect
Unnecessary low-frequency vocabulary	Replace with a more frequent equivalent	Improve lexical accessibility
Essential academic terminology	Retain and provide support	Develop academic vocabulary

Long multi-clause sentences	Segment or restructure	Reduce syntactic processing demands
Excessive nominalization	Convert into clearer verbal structures where appropriate	Clarify relationships between actions and participants
High information density	Prioritize and redistribute information	Facilitate comprehension
Implicit logical relationships	Make connections more explicit	Strengthen textual cohesion
Culturally unfamiliar examples	Contextualize where pedagogically necessary	Increase relevance for learners
Valuable academic discourse features	Retain selectively	Preserve academic character

In the Uzbek secondary school EFL context, this balance is particularly important because learners need accessible input while also gradually developing the ability to engage with more academically demanding English. AI-generated texts can support this progression if teachers use them as adaptable source materials rather than fixed outputs.

The findings therefore suggest a three-level adaptation model:

LEVEL 1 — LEXICAL ADAPTATION

Vocabulary frequency → academic relevance → replacement or support.

LEVEL 2 — SYNTACTIC AND DISCOURSE ADAPTATION

Sentence complexity → information density → cohesion → restructuring.

LEVEL 3 — PEDAGOGICAL VALIDATION

Learner proficiency → learning objective → academic value → final text selection.

The resulting process can be represented as:

AI-GENERATED ACADEMIC TEXT → LINGUISTIC DIAGNOSIS → SELECT / RETAIN / SIMPLIFY / EXPLAIN / RESTRUCTURE → PEDAGOGICAL VALIDATION → ADAPTED ACADEMIC TEXT

Consequently, effective linguistic adaptation cannot be reduced to prompting an AI system to "make the text easier." Such instructions may lower linguistic complexity, but they do not necessarily determine which academic features should remain or whether the revised text is appropriate for a particular group of learners. Teacher judgement therefore remains central to the process.

The analysis suggests that the most pedagogically appropriate adapted text is not necessarily the simplest version. Rather, it is the version in which linguistic accessibility and academic value are appropriately balanced. In this sense, generative AI functions as a material-generation and revision tool, while the teacher remains responsible for evaluating the linguistic demands of the text and determining its suitability for secondary school EFL learners in Uzbekistan.

CONCLUSION

The study demonstrates that the linguistic adaptation of AI-generated English academic texts for secondary school EFL learners in Uzbekistan should be approached as a systematic process rather than as simple text simplification. Although generative AI can produce coherent and academically styled texts rapidly, the linguistic characteristics of such texts do not always correspond to the proficiency level, reading experience, or instructional needs of school learners.

The analysis identified several key dimensions that require particular attention during adaptation: lexical complexity, syntactic complexity, academic vocabulary, information density, textual cohesion, and readability. These dimensions are closely interconnected. For example, a text may contain relatively familiar vocabulary but remain difficult because of complex sentence structure or high information density. Therefore, effective adaptation requires evaluation of the text as a whole rather than isolated modification of individual words or sentences.

A major conclusion of the study is that linguistic adaptation should preserve selected academic features instead of removing all challenging elements. Certain lexical and discourse features are valuable because they contribute to learners' gradual development of academic English. For this reason, the adaptation process should distinguish between unnecessary linguistic difficulty and instructionally valuable difficulty. The former may be simplified, while the latter should be retained and supported through explanation, paraphrasing, glossing, contextualization, or other forms of scaffolding.

The findings also confirm the importance of teacher mediation. AI-generated texts should not be treated as ready-to-use classroom materials without professional evaluation. Teachers need to determine whether the generated text is appropriate for learners, identify the features that may hinder comprehension, and decide which elements should be retained, modified, explained, reorganized, or removed. In this respect, the teacher remains responsible for transforming AI output into pedagogically appropriate input.

The overall adaptation mechanism can therefore be summarized as follows:

AI-GENERATED TEXT → LINGUISTIC ANALYSIS → IDENTIFICATION OF DIFFICULT FEATURES → SELECTIVE ADAPTATION → PEDAGOGICAL VALIDATION → LEVEL-APPROPRIATE ACADEMIC TEXT

For the Uzbek secondary school context, such an approach may help teachers use generative AI more responsibly while maintaining alignment with learners' language proficiency and instructional objectives. The value of AI in EFL materials development lies not only in its capacity to generate content quickly, but also in its potential to support differentiated and adaptable learning materials when combined with informed teacher judgement.

At the same time, the present study is conceptual in nature. Further empirical research is needed to compare original and adapted AI-generated texts with real groups of secondary school learners in Uzbekistan. Future studies could examine differences in reading comprehension, vocabulary uptake, perceived difficulty, and learner engagement across different adaptation levels. Such research would provide stronger evidence for determining which forms of linguistic adaptation are most effective for particular learner groups and proficiency levels.

Thus, the pedagogically optimal AI-generated academic text is not necessarily the easiest version of the original. It is the version in which accessibility, academic value, and learner development are appropriately balanced. This principle should form the basis for the responsible integration of AI-generated academic texts into secondary school EFL instruction in Uzbekistan.

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