

A Study on Generative AI-Assisted Adaptation Strategies for High School English Reading Texts

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Abstract: *With the increasing use of authentic materials in high school English reading instruction, adapting such texts to match students' proficiency levels has become both essential and challenging. This study investigates the potential of ChatGPT in English reading text adaptation by comparing ChatGPT-adapted texts with expert-adapted texts based on ten sets of Gaokao reading materials (2022–2024). An analytical framework comprising four adaptation dimensions—lexical, syntactic, content, and cohesion—and 19 specific strategies was employed. The findings reveal that both experts and ChatGPT rely most heavily on content-level adaptation, while experts engage least in syntactic adaptation and ChatGPT in lexical adaptation. At the strategy level, experts tend to prioritize information omission and high- and low-frequency word adjustment, whereas ChatGPT shows a preference for explanation addition, paraphrasing, and reordering of information. ChatGPT demonstrates clear advantages in rapidly identifying grammatical errors and enhancing syntactic diversity; however, it also exhibits limitations, including insufficient awareness of test design conventions, over-adaptation of linguistic style, weak cohesion, and inadequate evaluation of informational relevance. These findings highlight the importance of teacher–AI collaboration in text adaptation. Teachers should assume the roles of leaders, evaluators, and optimizers to guide, assess, and refine AI-generated texts. This study contributes to understanding the application of generative AI in language education and provides practical implications for the development of reading materials.*

Keywords: *Text Adaptation Strategies, High School English, ChatGPT*

1. Introduction

In high school English teaching practice, teachers often select authentic materials from domestic and international websites, magazines, and books to construct reading tasks ^[1]. These materials, characterized by their authenticity and richness, are considered valuable resources for exposing students to real-life language use and cultural contexts. However, such materials typically involve more complex vocabulary and syntactic structures, as well as higher information density, which inevitably impose a greater cognitive load on students ^[2]. Recent empirical studies have shown that adapted or simplified authentic texts can significantly promote the development of students' reading comprehension and inferencing abilities ^[3]. Therefore, teachers may adjust the difficulty of authentic materials through elaboration or simplification to better match students' proficiency levels and facilitate understanding. Nevertheless, adapting reading texts remains a major challenge for teachers. In most cases, teachers rely on their teaching experience and intuition when modifying authentic texts, while there is a lack of accessible adaptation guidelines and practical tools to support this process ^[2,4]. Moreover, text adaptation is a complex and multidimensional task involving lexical, syntactic, content, and discourse-level adjustments, which requires both linguistic expertise and pedagogical awareness. This complexity further increases the difficulty and time cost of manual adaptation.

In recent years, the rapid development of Generative Artificial Intelligence (GenAI) has provided new possibilities for language education. By generating contextually appropriate content based on user-defined prompts, GenAI tools enable efficient and flexible text processing and transformation. Among these tools, ChatGPT has attracted widespread attention due to its strong natural language processing capabilities and its potential applications in educational contexts. In the domain of reading text adaptation, ChatGPT may serve as a supportive tool to assist teachers in modifying authentic materials more efficiently. However, despite its growing use, there remains a lack of empirical research examining how ChatGPT performs in comparison with human experts in the specific context of high-stakes English examinations such as the Gaokao.

Therefore, this study seeks to explore the potential of ChatGPT, a representative form of Generative Artificial Intelligence, in the adaptation of English reading texts, and aims to address the following three research questions: (1) For high school English reading texts, what are the similarities and differences in adaptation strategies between ChatGPT-adapted texts and expert-adapted texts? (2) What are the strengths and limitations of ChatGPT in the process of adapting high school English reading texts? (3) Given the advantages and disadvantages of ChatGPT in text adaptation, how should teachers position their roles in the text adaptation process?

2. Research Design

2.1. Research Subject

This study takes ten sets of texts as its research materials, including expert-adapted texts, source texts, and ChatGPT-adapted texts. In this study, expert-adapted texts refer to the reading passages from the National College Entrance Examination in China from 2022 to 2024. Source texts refer to the original texts on which these reading passages are based, most of which are drawn from foreign websites, magazines, and books. ChatGPT-adapted texts refer to the texts generated by adapting the source texts through ChatGPT based on specific prompts.

2.2. Research Framework

The analytical framework for reading text adaptation strategies in this study is developed with reference to Rets et al. ^[5] and Yuan et al. ^[6], and further refined in accordance with the characteristics of reading comprehension tasks in China's National College Entrance Examination. In terms of adaptation dimensions, the framework consists of four categories: lexical adaptation, syntactic adaptation, content adaptation, and cohesion adaptation, encompassing a total of 19 specific adaptation strategies (See Table 1).

Table 1: Analytical Framework for Reading Text Adaptation Strategies

Adaptation Dimensions	Adaptation Strategies
1. Lexical Adaptation	[1.1] Verb–Noun Conversion
	[1.2] Adjustment of High- and Low-Frequency Words
	[1.3] Conversion between Abbreviations and Full Forms
	[1.4] Addition or Deletion of Emotionally Intensifying Words
2. Syntactic Adaptation	[2.1] Sentence Splitting
	[2.2] Sentence Combining
	[2.3] Tense Shifting
	[2.4] Sentence Pattern Transformation
	[2.5] Grammatical Error Correction
	[2.6] Active–Passive Voice Conversion
	[2.7] Paraphrasing
3. Content Adaptation	[3.1] Addition of Explanatory Information
	[3.2] Meaning Simplification
	[3.3] Information Omission
4. Cohesion Adaptation	[4.1] Reordering of Statements
	[4.2] Restoration, Reference, or Substitution of Pronouns
	[4.3] Addition, Deletion, or Substitution of Connectives
	[4.4] Deletion of In-text Subheadings
	[4.5] Paragraph Splitting or Combining

2.3. Research Procedures

This study selects reading comprehension texts from the National College Entrance Examination English papers from 2022 to 2024 and traces back their source texts. The AI tool employed in this study is ChatGPT (version 5.5). A total of ten source texts were adapted using the same prompt. The specific prompt is as follows: “Assume you are an expert in designing English test items for the Chinese Gaokao. You are required to adapt the following English text to match the difficulty level of Gaokao reading comprehension tasks. The adapted text must contain between 320 and 350 words.”

After obtaining the expert-adapted texts, source texts, and ChatGPT-adapted texts, all materials were compiled and cross-checked. The “Compare” function in Microsoft Word was then used to compare each of the ten source texts with their corresponding expert-adapted texts and ChatGPT-adapted texts, resulting in a total of 20 comparison documents. Subsequently, these documents were coded using NVivo 20.0.

3. Results

After quantifying the frequency of specific adaptation strategies used in the expert-adapted texts and ChatGPT-adapted texts, the overall results indicate that, under the conditions of adapting the same number of source texts and producing texts of comparable length, ChatGPT demonstrates a slightly higher total frequency of strategy use (478 instances) than the expert-adapted texts (312 instances). The following section presents and analyzes the use of adaptation strategies in expert-adapted and ChatGPT-adapted texts across four dimensions.

3.1. Lexical Adaptation

In the lexical adaptation dimension, the frequency of strategy use by experts and ChatGPT is relatively comparable, with 83 instances (26.6%) and 74 instances (15.4%), respectively. Among these, both groups most frequently employed the strategy of “high- and low-frequency word adjustment,” although some differences can be observed in their specific applications.

In expert adaptation, low-frequency words are more often adjusted through lexical substitution, semantic explanation, and the addition of Chinese annotations to reduce lexical difficulty. For experts, a central goal of text adaptation is to enhance students’ comprehension ability. As the direct carriers of meaning, vocabulary plays a crucial role in reading comprehension, and students’ vocabulary knowledge largely determines their understanding of a text. In contrast, ChatGPT primarily adjusts low-frequency words through lexical substitution and semantic explanation, without providing Chinese annotations. In addition to simplifying low-frequency vocabulary, ChatGPT also occasionally replaces high-frequency words with lower-frequency alternatives to increase lexical difficulty. For example, “for example” may be replaced with “for instance,” and “like” with “have a strong passion for.” Such practices, however, were not observed in the ten expert-adapted texts.

Furthermore, ChatGPT makes limited use of the strategy “addition or deletion of emotionally intensifying words,” inserting words such as “really” and “surprisingly” to enhance the emotional tone of the text, whereas this strategy was not observed in expert adaptations. Other strategies identified within the lexical dimension include “verb–noun conversion” (0.3% in expert texts; 1.7% in ChatGPT texts) and “abbreviation–full form conversion” (1.3% in expert texts; 0.4% in ChatGPT texts).

3.2. Syntactic Adaptation

In the syntactic adaptation dimension, ChatGPT employs adaptation strategies far more frequently than expert-adapted texts, with 111 instances (23.2%) compared to 26 instances (8.3%).

The most notable difference lies in the use of the “paraphrasing” strategy. ChatGPT applies this strategy 55 times, accounting for 11.5% of its total strategy use, and it appears in all ten texts. ChatGPT tends to restate the original content using entirely different syntactic structures, whereas experts are more inclined to make subtle modifications through strategies such as “sentence splitting,” “active–passive conversion,” and “tense shifting.”

Apart from this, the use of other syntactic strategies is relatively balanced between the two. In expert-adapted texts, “sentence splitting” and “sentence combining” are each used 4 times (1.3%), “tense shifting” 8 times (2.6%), “sentence structure change” 6 times (1.9%), “grammatical error correction” 3 times (1%), and “active–passive conversion” once (1%). In comparison, ChatGPT uses “sentence splitting” 13 times (2.7%), “sentence combining” 12 times (2.5%), “tense shifting” 7 times (1.5%), “sentence structure change” 12 times (2.5%), “grammatical error correction” 5 times (1%), and “active–passive conversion” 7 times (1.5%).

3.3. Content Adaptation

In the content adaptation dimension, both experts and ChatGPT show the highest frequency of

strategy use, with 150 instances (48%) and 219 instances (45.7%), respectively.

More specifically, experts demonstrate a clear preference for the strategy of “information omission.” This includes not only the removal of redundant information within sentences but also the deletion of substantial portions of entire paragraphs, thereby streamlining the content to meet the word limit requirements of Gaokao English reading texts. This tendency may be attributed to experts’ awareness that text structure plays a significant role in reading comprehension and is one of its key influencing factors [7].

In contrast, ChatGPT distributes its use of the three strategies—“explanation addition,” “meaning simplification,” and “information omission”—more evenly, without showing a strong preference for any single strategy.

3.4. Cohesion Adaptation

In the cohesion adaptation dimension, the frequency of strategy use by experts and ChatGPT is relatively comparable, with 53 instances (17%) and 75 instances (15.7%), respectively.

However, a notable difference can be observed in the use of the strategy “reordering of information.” ChatGPT employs this strategy only 2 times (0.6%), whereas experts use it 32 times (6.7%). This discrepancy may be explained by the close relationship between “reordering of information” and “paraphrasing.” As discussed earlier, ChatGPT tends to restate the original content, and such paraphrasing often involves adjustments to the sequence in which information is presented. In contrast, experts primarily use this strategy to clarify the logical structure of the text, thereby reducing reading difficulty.

Furthermore, in Gaokao English reading passages (particularly Sections B, C, and D), experts typically do not retain subheadings from the source texts. ChatGPT, however, does not consistently follow this convention. In some adapted texts, it preserves subheadings, while in others, it removes them.

4. Discussion

Through a comparative analysis of expert-adapted texts and ChatGPT-adapted texts in terms of adaptation dimensions and specific strategies, this study yields the following findings.

First, at the level of adaptation dimensions, both experts and ChatGPT place the greatest emphasis on content adaptation. However, experts make relatively fewer modifications at the syntactic level, whereas ChatGPT shows less engagement in lexical adaptation. Second, regarding specific strategies, the most frequently used strategies in expert-adapted texts are “information omission” and “high- and low-frequency word adjustment,” while “addition or deletion of emotionally intensifying words” and “paraphrasing” are not observed. In contrast, in ChatGPT-adapted texts, the most frequently used strategies (in terms of proportion) are “explanation addition,” “paraphrasing,” and “reordering of information,” whereas “information omission” and “high- and low-frequency word adjustment” are used less frequently.

Based on these findings, the following section further discusses the advantages and limitations of ChatGPT in adapting high school English reading texts.

4.1. The Advantages of ChatGPT in High School English Reading Text Adaptation

First, ChatGPT is capable of rapidly identifying and correcting grammatical errors in texts. Although authentic reading materials are typically written by native English speakers, grammatical errors cannot be entirely avoided. Moreover, Gaokao English reading texts are expected to conform to clearly defined grammatical rules taught at the senior high school level. Therefore, during the process of text adaptation, it is necessary to revise ambiguous or overly colloquial grammatical features. With its advanced natural language processing capabilities, ChatGPT can efficiently detect grammatical issues in texts, including but not limited to spelling errors and improper punctuation usage, and provide accurate and appropriate revisions. For instance, among the ten texts analyzed in this study, ChatGPT identified and corrected five grammatical errors across three texts. This not only greatly reduces the time and effort required for manual proofreading but also ensures the accuracy of the adapted texts, thereby offering significant support for teachers.

Second, ChatGPT can effectively enhance syntactic diversity. As indicated in the findings, ChatGPT

demonstrates a clear advantage in syntactic adaptation. It is able to flexibly employ a variety of strategies, such as sentence splitting, sentence combining, and active–passive conversion, thereby significantly enriching the syntactic variety of the texts. The application of these strategies can provide useful references for teachers during the process of text adaptation and is of great significance in meeting the learning needs of students at different proficiency levels.

4.2. The Disadvantages of ChatGPT in High School English Reading Text Adaptation

First, ChatGPT lacks a clear understanding of the rules governing Gaokao English test design. For example, although the prompt specifies that the texts are to be adapted for the Gaokao, the generated texts may still exceed the required length, indicating that ChatGPT does not inherently account for word limit constraints in Gaokao reading comprehension tasks. Therefore, teachers need to explicitly specify the target word count in the prompt. In addition, expert-adapted texts often retain certain beyond-syllabus vocabulary with accompanying Chinese annotations, whereas this strategy is not observed in the ChatGPT-adapted texts in this study. Teachers thus need to provide explicit instructions if such features are desired. Furthermore, ChatGPT does not adopt a consistent approach to the retention or deletion of subheadings within texts, requiring teachers to make adjustments based on specific contexts.

Second, ChatGPT tends to over-adapt the linguistic style of the source texts. As noted earlier, ChatGPT shows a strong preference for the strategy of paraphrasing while using “information omission” less frequently. As a result, it often engages in substantial rewriting and summarization of the source content, which may fundamentally alter the original author’s stylistic features. Carefully constructed sentence structures, distinctive expressions, and stylistic nuances embedded in the original texts are often weakened or even lost in the adaptation process. This, to some extent, runs counter to the original intention of using authentic materials.

Third, the cohesion of ChatGPT-adapted texts is sometimes insufficiently smooth. In contrast, experts are able to employ strategies such as pronoun restoration, reference, and substitution accurately and naturally, ensuring coherence and enhancing readability. ChatGPT, however, may not always effectively apply such cohesive strategies, which can lead to logical or semantic discontinuities and negatively affect the overall fluency and readability of the text.

Fourth, ChatGPT has limitations in evaluating the relevance and value of textual information. Authentic materials often contain rich cultural information, which can help students develop intercultural competence. However, some information may be redundant or inappropriate, especially in the context of examination texts. Experts are generally able to make informed judgments about whether to retain or omit such content, whereas ChatGPT may struggle in this regard. For example, in the text “Growing Vegetable Lovers”, the original mention of a school shooting was entirely removed in the expert-adapted version, while ChatGPT, although deleting the word “shootings,” still introduced related information such as “neighborhood violence.” This indicates that ChatGPT may not always appropriately filter sensitive or extraneous information.

5. Conclusion and implications

This study conducts a comparative analysis of expert-adapted texts and ChatGPT-adapted texts in terms of adaptation dimensions and strategies. The findings indicate that both expert and ChatGPT adaptations most frequently involve content-level strategies. However, experts show the least engagement in syntactic adaptation, whereas ChatGPT demonstrates the lowest frequency in lexical adaptation. Differences are also observed in the use of specific strategies. Overall, ChatGPT-adapted texts exhibit advantages such as the rapid identification of grammatical errors and the enhancement of syntactic diversity. Nevertheless, limitations are evident in its understanding of test design conventions, control of linguistic style, textual cohesion, and the evaluation of informational relevance.

These identified strengths and limitations of ChatGPT provide important implications for teacher–AI collaborative text adaptation. When using AI tools such as ChatGPT, teachers should clearly position themselves as “leaders,” “evaluators,” and “optimizers.” As leaders, teachers need to determine the overall direction and objectives of text adaptation and explicitly define key parameters, such as word count, discourse difficulty, the retention or removal of subheadings, and the inclusion of Chinese annotations. As evaluators, teachers should draw on their professional knowledge and teaching experience to assess the adapted texts in terms of language style, content quality, and cohesion, ensuring that the texts are both appropriate for students’ proficiency levels and effective in conveying meaning.

As optimizers, teachers are expected to further refine and improve the AI-generated texts. In sum, to achieve optimal human–AI collaboration, teachers should fully exercise their guiding role by critically evaluating and refining AI-generated outputs.

Finally, this study has certain limitations. First, the number of Gaokao reading texts analyzed is relatively limited, which may constrain the breadth and depth of the findings. Second, the study focuses primarily on textual analysis of adaptation strategies and does not sufficiently explore teachers' perceptions and practices in real classroom contexts. Future research could expand the dataset, further refine the analytical framework, and incorporate empirical investigations such as teacher interviews. In addition, further studies may explore the application of ChatGPT in adapting texts for other task types (e.g., continuation writing and cloze tests), thereby providing broader insights for the development of English learning materials.

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