

# From Text to Thought: A Discourse-Based Approach to Teaching Expository Reading in Chinese Senior Secondary Classrooms Using AI-Powered Analysis

Original study

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**Abstract:** This study examines the use of AI-based discourse analysis tools to teach expository reading which is an aspect of senior secondary EFL education in China. The research is based on the concept of Zone of Proximal Development (ZPD) of Vygotsky. It discusses the manner in which Artificial Intelligence can be used as a mediation tool to help students to grasp the intricate organizations of texts. The study has a qualitative case study design, and it is based on the information that is collected through learner feedback, tutor reflection journals, and classroom observations. According to the results, AI-aided instruction is pivotal in enhancing the awareness of the students regarding discourse issues such as problem-solution, cause-effect, and comparison-contrast models. It is also conducive to profound levels of understanding, and it makes the students self-reliant as they are provided with individual responses and in real time. The role of teachers was crucial, as they helped learners to process AI outputs and efficiently used feedback. The study has allowed it to see some benefits but also identifies some challenges as the tendency of the students to rely more on the suggestions provided by AI than the need to and initial technical issues that they have encountered. The research results suggest that AI tools have significant opportunities in EFL education, but their performance depends on their thoughtful integration and active teacher scaffolding. The study concludes with pedagogical support of finding a balance between the AI support and human instruction and gives directions on future research on the long-term effects of AI-mediated reading behaviors on the second language learning experience.

**Keywords:** AI-powered discourse analysis, Expository reading instruction, Chinese EFL classrooms, Zone of Proximal Development (ZPD), Learner autonomy, Teacher scaffolding, Textual comprehension.

## 1. INTRODUCTION

### 1.1 The Importance of Expository Text Comprehension

Expository texts have an informational and non-narrative format, and are necessary to academic success, especially in secondary and tertiary education. To comprehend these texts, students should be able to identify and decode such organizational patterns as descriptive, compare-contrast, cause-effect, and problem-solution

texts, which facilitate content learning and knowledge acquisition in all academic fields (Grabe, Stoller 2019). Linguistic and cognitive coémpetence to work with such texts and discover their rhetorical structure, to understand abstract notions of the text and derive meaning from non-familiarised language words is a considerable challenge to EFL (English as a Foreign Language) students, especially in the senior secondary schooling in China (Shanahan, Shanahan 2008).

In the Chinese EFL context, where reading instruction traditionally emphasizes grammar and vocabulary, students often struggle with identifying logical connections and discourse markers within expository texts (Zhang 2025). This struggle can hinder their academic progression and diminish their motivation (Song et al. 2025). Moreover, national curriculum reforms in China now emphasize the cultivation of critical reading skills and autonomous learning, making it imperative for educators to adopt more interactive and strategic reading instruction methods. As such, exploring innovative tools, such as AI-assisted discourse analysis, offers a timely and pedagogically sound response to the challenges EFL learners face in mastering expository comprehension.

### 1.2 Role of Discourse in Deep Reading

Discourse analysis is a key component to improving deep reading, in that its application is especially effective in expository text handling, as it helps learners to interpret how textual elements are used in enhancing meaning, such as cohesion, coherence, and writing conventions and interaction between writers and readers (Hyland 2005; Halliday, Hasan 2014). By analyzing discourse patterns and structures, including thematic development, text construction, and rhetoric, the learners become able to acquire the metacognitive aptitude to understand implicit relations and logical flow within a text.

Deep reading, which is the reflective and analytical process of the texts, depends on the capacity of the readers as well as recognizing the textual cues of argumentation, position, emphasis, and coherence besides the lexical meanings. In EFL classroom, discourse teaching elements can bring a two-step span between the literal understanding and the understanding as an inference and evaluation strategy that may help students move towards a contextual understanding rather than a literal understanding.

In the case of Chinese senior secondary students, discourse-oriented reading training has a special influence because the conventional reading pedagogy has neglected the relevance of global coherence and critical analysis in favor of the sentence-based deconstructing approach. The ability of educators to incorporate discourse analysis enables them to guide the exploration of expository texts by learners, which eventually facilitates independent reading and the acquisition of higher-order literacy skills by learners.

### 1.3 Use of AI in Enhancing Teaching Practice

The addition of Artificial Intelligence to education changed the way educators operate. AI tools offer teachers effective strategies that will help in making data-driven decisions and customized training. In particular, AI-based discourse analysis tools have been recognized as having the capability to detect aspects of the text like linguistic structure, consistency, complexity of semantic net, and coherence. Such tools provide an immediate response to discourse with written and oral language to students by helping to instruct according to the student needs.

Within the framework of EFL education, the students usually struggle in their attempts to deconstruct linguistic complexity of academic writing. An increasing number of AI-based systems, including Automated Writing Evaluation (AWE) systems and Natural Language Processing (NLP) systems, are beginning to find use in scaffolding comprehension. These tools are able to point out dominant vulnerabilities of logical flow, inappropriate use of cohesive devices, and flawed argument structure areas where EFL students normally fail. There is also adaptive AI, person-adaptive AI systems personalize content delivery and allow learners of varying ability levels to work with texts of various levels of difficulty. But there should be the critical mediation of the AI use by teachers as it is necessary to avoid over-reliance and to make sure that the use is in compliance with the purpose of education and the cognitive development of learners. This article looks at this question by asking how does AI-powered discourse analysis tools influence students' comprehension of expository texts.

## 2. LITERATURE REVIEW

### 2.1 Discourse Features of Expository Texts

Expository texts are characterized by their use of explicit discourse structures that convey information, explain concepts, and analyze relationships between ideas. These texts frequently follow conventional organizational patterns such as cause-effect, comparison-contrast, sequence, and problem-solution (Halliday, Hasan 2014; Meyer 2003). A clear understanding of these structures enhances readers' ability to extract and retain information, make inferences, and engage in higher-order thinking (Goldman, Rakestraw 2000).

Discourse markers and cohesive devices like however, however, in contrast, as a result, etc. are very important in marking the logical progression of ideas in these texts (Sanders, Noordman 2000). They are not just transitional; they act as some cognitive guides that help in the coherence-building process when reading (Hyland 2005). Students of the EFL language, especially those with non-Western academic background, might struggle with implicit discourse frameworks since they are familiar with neither the traditions of academic English language rhetoric (Zamel 1983; Liu, Braine 2005). Moreover, expository writing has a high lexical density and syntactic complexity, further complicating the work of the secondary EFL learners (Schleppegrell 2004).

Modern studies adopt the central role of explicit teaching in discourse and cohesion in facilitating metacognitive involvement of texts among students (Carrell 1985; McNamara et al. 1996). Artificial intelligence tools that detect and display discourse characteristics might therefore be useful scaffolding tools in facilitating profound knowledge and tactical reading.

In addition to structural arrangement, when it comes to expository texts, readers must be able to point out genre-based rhetorical elements, as well as to differentiate the pragmatic language application. As an illustration,

nominalizations, passive forms, and technical vocabulary are common characteristics that help the expository writing style accomplish its information-intensive and detached tone (Schleppegrell 2004). Such features of the language have communicative functions and may confuse EFL learners who are yet to develop academic literacy in English. Therefore, knowing the mechanisms of such properties in the discourse allows them to have a better understanding and be able to critically read text, evaluate arguments, and cross-chain information in paragraphs.

With the development of educational research, researchers are investigating the possibilities of using digital tools, in particular, AI-intensified tools, to assist students in unravelling the complicated discourse arrangements. The discourse analysis tools based on AI can be used to detect rhetorical changes and trace discourse markers, which gives students live feedback when reading. Such metacognitive awareness can be increased with the help of such computational mediation, where learners can anticipate and understand how ideas can logically develop in texts. Here, Artificial Intelligence acts as a passive tool, as well as an active learning assistant, which can supplement teacher-led teaching, especially in the context of a scaffolded reading aid.

## **2.2 AI and Digital Tools in EFL Classrooms**

The use of AI and digital tools in the classroom is a more commonplace trend in recent years driven by the prospects of personalized learning and real-time feedback. Texts can be analyzed with the help of Grammarly, Write & Improve, and Coh-Metrix, where the overall fluency, the variety of lexical use, cohesion, and syntactic complexity are examined, and students are able to become conscious about the use of the language (Crossley et al. 2016). These aids support the learning of students in their perception of the complex linguistic structure with the repetition of the words in lexical and coherence patterns, which is especially helpful when students work with expository texts.

What do we mean by Textalyser and Coh-Metrix? Textalyser is an online application that evaluates textual features such as the readability, frequency of words used and the complexity of the sentence structure. Coh-Metrix (Computational Assessment of Language Technology to Evaluate Writing) is a test of textual cohesion and semantic similarity which is computed by assessing linguistic and discourse features including connectives, referential forms and semantic overlap between sentences. The two tools can give visual and quantitative feedback about the quality and readability of the text, and it is applicable to the comprehension of discourse coherence in students.

AI-based programs like Pigai and iFlytek have already been applied in order to assist in the process of writing enhancement and reading. What are Pigai and iFlytek? Pigai is a Chinese technology firm that develops AI-driven automated essay scoring software that offers details of essay structure, coherence, grammar, and vocabulary

used in writing an essay to Chinese students and English learners. iFlytek is a Chinese technology corporation whose natural language processing software is capable of identifying speech recognition and text analysis devices that would use in writing essays. These tools have been proven to increase the linguistic awareness of students and their critical and independent reading and learning of texts (Pan et al. 2025). In addition, adaptable teaching systems are capable of setting the level of content challenge to be close to the Zone of Proximal Development (ZPD) of individual students to allow scaffolding to be more effective (Zawacki-Richter et al. 2019). However, despite the great advantages of AI tools, there is a fear of total dependence of students on automated feedback and the necessity of instruction-based operation (Al-Huwail et al. 2025).

The use of AI tools is critical in assisting learners to recognize and implement discourse properties in exposition texts. These applications study sentence boundaries, structural cues and logical connectors so that students can see how arguments can be built and how ideas can be linked within a text. Due to problem-solution sequences or cause-effect chains, AI assisted parsers of discourse can help reveal the abstract structural patterns in the language of cause-effect relationships and problem-solution sequences, thus scaffolding them into a more sensible or comprehensible insight. This is done to enhance understanding and prompt learners to put this knowledge into dented writing and talking. By doing so, digital tools provide more accuracy in language and higher-order literacy proficiency required to achieve academic success.

Nevertheless, the implementation of AI into the classroom should be regulated to prevent the superficial use. Certain students might find AI generated feedback unquestioningly reliable or may rely on it unquestionably which might ruin the process of developing self-monitoring and metacognition reading skills. Hence, educators cannot be deprived of their role as facilitators, who place AI outputs into context, promote reflective practice, and make sure that technology does not hinder but supports the pedagogical goals. Also, there are systemic and organizational influences, including teacher training, internet access, and digital literacy, which greatly influence the effectiveness of AI-based interventions in the EFL classrooms, particularly in the under-resourced settings.

## **2.3 Constructivist Teaching Approaches and Learner Autonomy**

Constructivist pedagogy is based on the assumption that learning is the active process of students who build knowledge with the help of reflection, social interaction, and questioning (Vygotsky 1978). Under this framework, learning works best once the students are encouraged to practice self-directed learning, problem-solving, and critical thinking as opposed to being passive receivers of information (Fosnot and Perry 1996). One of the major characteristics of constructivist pedagogy is the

scaffolding of students and social interaction in assisting them to reach a greater level of understanding through the help of more informed individuals (Vygotsky 1978).

The adoption of AI apps in EFL pedagogy can be traced to the principles of constructivism conception because it offers individualized feedback, allows students to interact with texts, and avails a chance to make instant feedback and corrections (Rad 2025). AI linked to the analysis of discourse tools can be used to greatly customize the learning experience, which means that feedback becomes accessible according to the student-specific needs. This personalization assists the learner in understanding expository textual materials and facilitates student agency by making the students feel that they are in charge of their learning experience. AI can be used by teachers to help the students read and write in ways that still preserve the dialogic and student-focused aspects of constructivist practice, and that nevertheless do not compromise the teacher-facilitation feature of the learning process.

Studies also indicate that, when students are the ones engaged in their learning with the help of AI technology, they acquire a stronger metacognitive competence, and that this is a crucial part of self-regulation and long-term learning. Using constant engagement with the AI tools, learners will be able to track their progress, identify weaknesses and strengths, and assign themselves new goals to achieve in their further education.

The incorporation of AI in the constructivist pedagogical structure also facilitates collaborative learning, where the students discuss the AI-generated feedback with each other and explain parts of the texts together. This kind of interaction contributes to the construction of knowledge as co-construction of knowledge, which is one of the cardinal principles of constructivist theory. Discussing the variants of the cause-effect or problem-solution framework detected using AI tools, students will perfect the quality of their critical skills and will become more successful in noticing subtle patterns in the text. In that regard, it puts teachers in the role of mental mentors, whereby they encourage profound thinking, dialogue, and critical questioning of AI propositions rather than blindly accepting.

Moreover, AI will be able to close the distance in between autonomous learning and classroom training. Whenever students get used to AI tools in a facilitative and supportive classroom setting, there are high chances that they will use them even after leaving the classroom. This shift towards teacher-mediated learning to independent utilization of digital tools is the scaffolding process, which is the key feature of constructivist models. The scaffolds, be it the AI tools or the human assistance, can be phased out progressively as learners master the strategies of understanding the accurate word plays in the complex texts and are left without any doubts about being able to cope with their own academic reading in English.

## 2.4 Theoretical Framework: Vygotsky's ZPD and Collaborative Learning

Vygotsky's (1978) idea of the Zone of Proximal Development (ZPD) proposes that students can arrive at advanced cognitive levels when offered proper scaffolding or supervision from more expert persons. In the setting of AI-supported learning, teachers and AI gadgets can offer this scaffolding, which facilitates the process of learning by providing instant, personalized responses and supervision (Song et al. 2025). AI-driven technology like discourse analyzers, for instance, can be effective in recognizing patterns in the structures of the texts and identifying cohesive devices, in so doing acting as an extra device of support that minimizes the gap between their existing skills and prospective advancement.

Moreover, AI application implementation is also consistent with the principles of collaborative learning, where the emphasis is placed on the social interaction of learning (Lantolf, Thorne 2006). AI tools may be used to support group exploration, to promote collaborative problem solving and to support peer communication. These applications encourage group learning as they allow learners to contrast their personal understandings of texts and share their discoveries with them in real-time. Through this process, critical thinking and reflective understanding are developed. This two-fold nature of AI tools as scaffolders and facilitators of development provides a rich environment of learning, where learners can experience collective intellectual interaction and individual support.

The applicability of the Vygotsky ZPD to the realm of AI-assisted learning reveals the importance of mediating tools in cognitive processes, and the theoretical framework of the method highlights the possibility of AI tools in helping EFL students gain a certain understanding of the interpretation of complicated texts through their help to experience learning dynamically and effectively.

An effective scaffold can be achieved by the ZPD only when the mediation tools, including AI, are available and students can request and embrace the feedback meaningfully. This internalization process converts the external directions into internal strategies, and this enables the pupils to acceptably have control over their thinking styles. In this sense, AI applications must not be used to replace human teaching but in order to provide systematic opportunities in guided practice. The role of teachers in this ecosystem is critical, making students understand AI-generated feedback, situating it in their linguistic and cultural backgrounds and providing less and less assistance as students become more autonomous. The key to ZPD is strengthened here by the core value of this dynamic mediation, namely, that it is most efficient when the support is targeted, reactive and withdrawn.

Shared cognitive responsibility is also a part of collaborative learning in ZPD wherein students take responsibility in constructing meaning together through interaction and dialogue. This process can be facilitated by artificial intelligent enhanced environments, which provide collaborative annotation and immediate analytics as well as shared online workspaces in which learners

can mutually build understanding of texts. As a case in point, groups may discuss collectively the manifestation of cause-effect constructions in a text and use visualizations produced by AI discourse tools. These collaborative experiences are enriched with the insights of AI to motivate students to come up with collaboratively developed strategies towards tackling complex texts, testing assumptions, expressing themselves, and finally empowering individual and team-based capabilities in academic reading.

### **3. METHODOLOGY**

#### **3.1 Research Design: Qualitative Case Study**

The proposed research employed the qualitative case study design to explore how artificial intelligence-based discourse analysis tools were used to teach expository reading. Qualitative methodology is most advantageous in terms of accomplishing the in-depth investigation of the instructional practices, learners' experiences, and situational fluctuations that provoke the usage and efficiency of AI instruments in an educational setting (Creswell, Poth 2018). The case study method is especially effective in the investigation of complex phenomena in the natural environment; hence, it suits the research questions perfectly as it seeks to establish the impact of AI tools on the reading comprehension process among senior secondary classrooms in China. Qualitative case studies allow the researcher to obtain the form of the perspective that the participants have, and they provide rich and detailed information about the ways the AI discourse analysis is applied in the classroom. This way of methodology promotes open-ended and in-depth research that respects the exceptional challenges and possibilities of using AI as a part of teaching practices. Attempting to build an understanding about the actual applicability of AI tools and how students and teachers can be impacted by them in their practice, the present case study is expected to shed some light on how complex texts are accessed by the former group. The method also enables one to examine certain subtleties of AI integration that could pass unnoticed with quantitative studies.

#### **3.2 Participants: English Teachers and Grade 11 Students (Ages 16-17)**

In this investigation, there were two qualified English educators and 60 Grade 11 students (aged about 16-17 years old) of 3 urban secondary public schools in Guangdong Province, China. The average of the teaching experience of the teachers was 8 years in EFL teaching. They had been chosen because they were willing to adopt technology in the classroom and were conversant with the methodology of teaching the English language. The educators were provided with professional development courses that encouraged them to use new devices in the classroom, such as AI-enhanced teaching platforms (AI-Huwait et al. 2025). The teachers were trained to use

AI discourse analysis software, including Grammarly and Coh-Metrix, to analyse cohesion, lexical sophistication, and text structures with the objective of increasing student learning of expository texts.

The 60 learners were selected in two schools depending on their willingness to take part, as well as middle-level proficiency in English aimed under the China National English Proficiency Standards. According to the China National English Proficiency Standards, these students were considered intermediate-level learners. They were already familiar with reading scholarly works, but they did not have much experience in analysis based on AI. This group was chosen to investigate how AI tools affect students who already knew the traditional ways of reading, but did not have strategic reading skills or knowledge on how to read a complex academic text with analysis. Learners from various educational settings have been recruited to study the potential to use AI applications to support EFL students.

#### **3.3 Data Collection**

In order to measure the effect of AI-powered discourse analysis on the understanding of expository texts, several data collection techniques were used. The purposes of these methods were to reflect the experience of both teachers and students and provide a holistic view on the benefits and issues of integrating AI.

#### **Classroom Discourse Analysis Using AI Tools:**

The Artificial Intelligence tools that teachers used to analyze the expository text that students reading involved pleased them included Textalyser and Coh-Metrix. They are instruments that can be used to assess the different text features such as readability, consistency, clarity, and lexical sophistication.

What are Textalyser and Coh-Metrix and what do they do? Textalyser is an analysis software that is conducted on the web that looks at the frequency of words, the length of the text and the readability and the level of sophistication in the vocabulary of the text. Coh-Metrix (Computational Assessment of Language Technology to Evaluate Writing) is based on linguistic analysis to measure various aspects needed to determine textual cohesion, semantic similarity, and discourse structure. Both tools give visual and quantitative feedback computing the text attributes, allowing the readers to realize the influence of language decisions on meaning and cohesion.

The students were using these tools during the reading activities receiving instant feedback about what they have understood. The discourse analysis based on AI was found to be efficient in assisting students in discovering the rhetorical frameworks, visually perceiving the correlation between ideas and realizing the link between the different parts of the text. This method is based on the fact that feedback improves learning particularly when it is instant and explicit. With the help of these AI tools students could think critically of text structures, and engagement of deeper retention and understanding.

#### Teacher Lesson Plans and Reflections:

Teachers were requested to create elaborate lesson unit plans and reflective records on how they have integrated AI tools in the process of reading. These considerations offered insights into the implementation of AI feedback in a teaching context, and they revolved around perceived advantages and difficulties. Namely, educators thought over the impact of AI responses on student engagement and comprehension. The previous studies have identified that new methods of pedagogy offer essential insights into effective teaching. These reflective practices would enable the study to determine the extent of the AI tools being in line with the pedagogical goals of the teachers and whether they helped teachers to enhance critical reading skills among the students.

#### Student Feedback and Journal Entries:

Learners were asked to keep a journal during the research but to chronicle their experiences and thoughts regarding the use of the AI tools. They all answered feedback forms at the conclusion of the study, where they shared their opinions on the effectiveness of the AI tools and the challenges they had. Journal records aided researchers in deciphering the emotional and cognitive condition of students in the AI applications, whereas feedback forms offered a wider perspective of the general learning experience. Student self-reporting information can be considered as a helpful instrument which can be used to evaluate the usage of academic tools since it will be possible to get a first-hand account of the engagement and perception of the student.

These coupled strategies resulted in a valuable set of data that comprised both qualitative data with insights and quantitative data of learning outcomes. The combination of teacher reflections, classroom discourse and student responses triangulated data guaranteed thorough knowledge of the impacts which the AI tools had on expository reading teaching.

### 3.4 Data Analysis

The thematic analysis described in Braun and Clarke (2006) was used to perform the data analysis, and it is a systematic way of identifying, analyzing, and reporting on the different themes in qualitative data. This method was chosen due to its clarity and the ability to analyze explicit and implicit characteristics of the classroom conversation and combine the teacher and the student perspectives regarding the inclusion of AI tools.

The recorded classroom transcripts that contained the student responses to AI-generated discourse analysis and the responses of the teacher-students were initially coded thoroughly regarding the discourse features, including the organizational patterns, rhetorical strategies, and cohesive devices. These aspects fit the existing paradigms in the realm of discourse analysis, specifically the line of thought developed by Halliday and Hasan (2014), the authors of works that support the significance of cohesion in the process of text understanding. The recurring patterns were studied in the various

data sources that were analyzed after the first coding, which consisted of audio recordings, lesson plans of the teachers, and the journals of students, to determine recurring themes based on the effectiveness of AI tools in enhancing reading comprehension.

Also, the teacher and student reflections have been examined, depicting their views and opinions concerning the usage of the AI tools. These considerations allowed putting the findings into background concerning the subject matter in question, and they also helped to gain even a better understanding of how the AI-facilitated discourse analysis interrelated with the process through which students learned. The developed themes demonstrated the effect of the use of AI tools on the reading strategies in a multidimensional way, thereby pointing out that there are advantages as well as issues concerning the incorporation of technology in the classroom setting.

## 4. RESULTS

The findings are displayed in this section from responses of the learners, classroom discourse analysis, and reflections of the mentors, underlining the impact of AI-driven discourse analysis apps on learners' understanding of expository texts. Many outlines appeared in the communication of the learners with texts, their understanding of discourse analysis, and the tutor mediation's role.

### 4.1 Patterns of Student Interaction and Comprehension

The discourse analysis of AI-powered tools affected the students greatly in terms of their capabilities to recognize and learn discourse structures. Students have shown significant progress when working with AI-generated feedback and identifying some of the major organizational structures like comparison-contrast, and cause-effect structures. The interaction example in the classroom revealed that the majority of students were able to distinguish those patterns with better precision once they took part in the instruction provided by AI. In addition, the students demonstrated a stronger comprehension of the role these frameworks play to create a general textual coherence and were more capable of recognizing the application of cohesive devices, which is necessary in creating logical links among thoughts. In such a way, the reading comprehension of students was expanded past the level of the superficial understanding of the specific text in order to form a more in-depth analysis of how ideas are constructed and structured in the piece of writing.

According to the discussions conducted in the classroom, it was revealed that students were more inclined to use AI feedback to observe their reading patterns. As an illustration, when struggling students with the ability to comprehend complex texts received the help of AI-based passages and could be segmented by identifying the basic structures. This change in their reading behavior implied that AI tools exerted a straight impact on the capability of the students to read and process more complicated information. In the course of time, the

Table 1: Student Performance in Identifying Discourse Features (Pre- vs Post-Intervention)

| Discourse Feature             | Pre-Intervention (%) | Post-Intervention (%) |
|-------------------------------|----------------------|-----------------------|
| Cause-Effect Structure        | 42%                  | 81%                   |
| Comparison-Contrast Structure | 38%                  | 76%                   |
| Problem-Solution Structure    | 34%                  | 73%                   |
| Use of Cohesive Devices       | 40%                  | 79%                   |

students gradually gained more and more confidence in their skills to comprehend expository texts without the help of AI tools but as one who supports it but does not need to lean on it as a crutch.

Table 1 shows a comparative analysis of the performance of students in terms of identifying the main discourse features in the pre-intervention and their performance after the intervention of using AI-based discourse analysis tools. The statistics are clear evidence of the fact that the capacity of the students to define and comprehend the organizational features of expository texts improved significantly. Interestingly, there were significant improvements in the ability of students to identify cause-effect systems, with the levels of performance going up from 42 per cent prior to the intervention to 81 per cent after the intervention. On the same note, the ability to differentiate between comparison-contrast structures also advanced, from 38 per cent to 76 per cent, showing significant gains in the text-organization analytical skills of the students. Another attribute of expository texts, a problem-solution frame, improved in student recognition, as it was 34 per cent before the intervention and 73 per cent after the intervention, and proves the effectiveness of AI-assisted technologies in fostering cognition. Also, there was increased awareness of cohesive devices that are essential in understanding text cohesion and

flow, with a better recognition of performance scores enhanced by 40 per cent to 79 per cent. Such results indicate that AI devices are important in enhancing the recognition of main features of discourse among students, which is required to enlarge their understanding of intricate texts. The gains in all categories suggest that AI-based products were successful in helping the students to learn text structures, which enabled them to reach an in-depth level of learning.

4.2 Teacher Mediation and Scaffolded Learning

The teacher’s role in mediating AI output proved essential in ensuring that students could effectively use AI-generated insights in their learning. Students were inclined to strongly depend on responses provided by AI at the onset of the intervention and tended to think these suggestions could be accepted without doubting them. Nevertheless, teachers were instrumental towards modifying students to read AI responses and use them more efficiently as the intervention progressed. Students, on their part, with the help of focused scaffolding by teachers, were prompted to reflect on the AI-generated analysis, compelling them to ask questions and to contemplate better their meaning and text structures of texts. As an example, teachers often led a discussion regarding how AI identifies discourse properties to teach the students

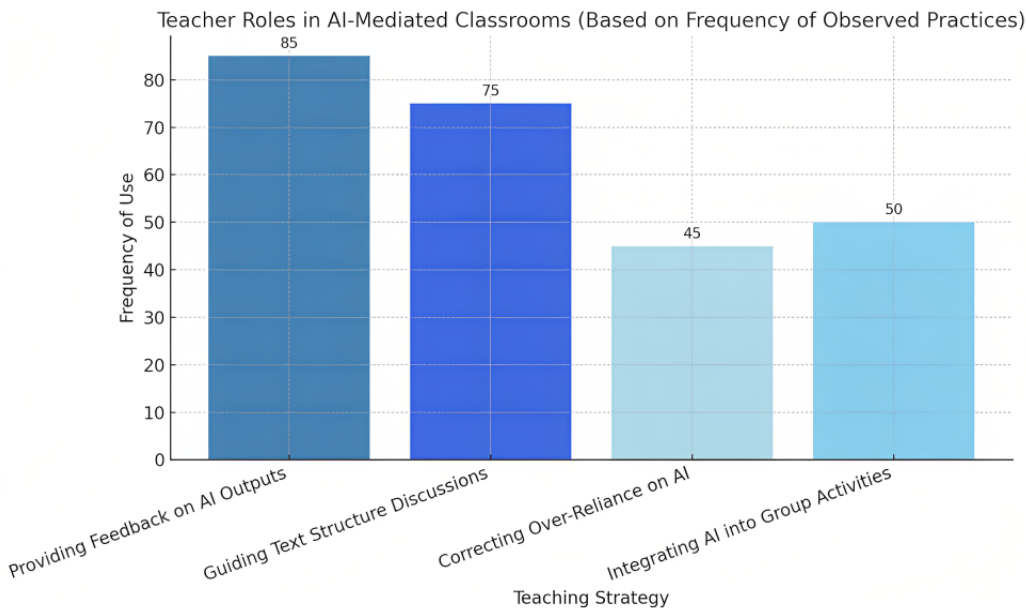


Figure 1: Teacher Roles in AI-mediated classrooms (Based on Frequency of Observed Practices)

the importance of context-specific information to understand AI recommendations.

Consequently, students began to slowly transition to more active contributors to their learning and not passive consumers of AI-generated answers. Educators noted that students were found to get decreasingly hesitant to cross-check AI analysis with personal understanding of the text, which motivated them to be more independent in their reading and comprehension exercises. This was recorded in teacher reflection journals as students were becoming increasingly involved and reflective on their learning strategies and taking more ownership of their academic progress. This change highlighted the strong influence of teacher intervention in facilitating the critical thinking of students and encouraging them to develop a thoughtful knowledge of expository texts. Due to gradual scaffolding by the teachers, the gap between AI guidelines and meaningful and independent work with complex texts could be overcome.

Figure 1 represents a comparative picture of the frequency of application of the different pedagogical activities of the teachers in AI-based integrated learning environments. There are four different teaching strategies identified as follows: Providing Feedback on AI Outputs, Guiding Text Structure Discussions, Correcting Over-Reliance on AI, and Integrating AI into Group Activities, and the frequency of implementation will be shown on the x-axis and the y-axis, respectively. The chart indicates that the most frequent strategy that is observed is the “Giving Feedback on AI Outputs”, with the next contender being the “Wading through the Text Structure Discussions.” The rates of these two strategies show that they have much more active implementation, which means that teachers were interested in guiding students in their interactions with AI-generated content and facilitating the discussions to ensure that the students comprehend the text structure in accordance with using AI-generating tools. On the contrary, Correcting Over-Reliance on AI and Integrating AI into Group Activities were less common, but also signify the important practices in classroom. The comparatively low prevalence of these strategies might be rewarded by new development practices or by the spheres where the training of teachers and their emphasis can be continued to be enhanced. All in all, the chart demonstrates the importance of teachers in scaffolding AI usage, especially in the form of feedback and discussion, emphasizing how the oversight of human interaction will be necessary in terms of responsible and efficient integration of AI implementation in learning settings. This is a visual confirmation of the assumption that AI, notwithstanding its power, is best applied when it is augmented with active pedagogical activity.

#### 4.3 Benefits and Barriers of Using AI Discourse Tools

AI-based discourse analysis holds significant advantages for EFL learners with expository texts, according to student and teacher feedback. Primary benefits include real-time coherence visualization (via Coh-Metrix etc),

which identifies rhetorical features such as cause-effect, and problem-solution relations to help students comprehend logical structures previously hidden. Real-time, individualised feedback supports student autonomy, with 85% reporting better understanding and 78% increased confidence in discourse feature analysis. Teachers were enthusiastic about these tools’ ability to transform passive reading into metacognitive processes, in line with ZPD principles, as they offer scaffolded support that helps learners move from basic reading to inferencing.

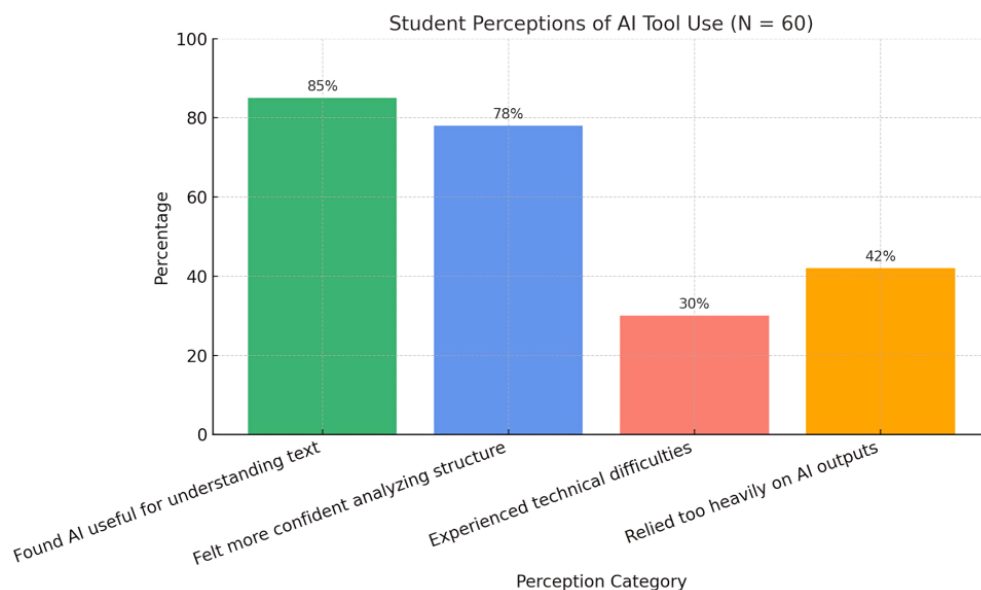
The operational application of AI-assisted learning did, however, pose some remarkable challenges that are worth exploring in detail. Early technical problems that prevented a student from effectively using the system were reported by a large number of students (around one-third). These issues were more pronounced in resource-limited educational environments where multiple changes in internet connectivity and limited access to digital devices remain persistent issues. Infrastructure shortages raise additional issues of technology uptake across classrooms in China, particularly in under-resourced classrooms, and indicate that for technology to be implemented successfully, it must be first available.

Beyond just infrastructure, teaching and learning risks arose, particularly the potential to rely too heavily on AI-generated analyses. It was observed that, at the start, about 42% of students were more inclined to consume the output of AI without question. This situation is alarming because there is a possibility of loss of self-regulated learning and critical thinking skills, which are important for higher-order language acquisition. This was also highlighted by the teachers’ reflections, which emphasized that guided or mediated teaching is needed to make sure AI is used as a cognitive support tool, not as a substitute for independent analytical reasoning.

Another limitation is the linguistic and cultural limitations of AI systems. In particular, failure to understand culturally embedded, idiomatic and figurative expressions created problems for Chinese English as a Foreign Language (EFL) students. This restraint is especially notable, considering the differences in rhetorical practices between Chinese and English expository styles. This can lead to a limited understanding of the feedback generated by AI, as the technology might not convey complex nuances or contextually appropriate interpretations, limiting the ability to fully understand and transfer language.

Collectively, these results suggest the need for a more holistic and context-responsive strategy for the adoption of AI in education. To overcome these challenges, targeted professional development for teachers, technological enhancements, and the development of pedagogically appropriate frameworks that enable meaningful human–AI interaction are necessary. These steps are crucial not only to harness the full potential of AI for educational enhancement but also to address potential challenges in various learning settings.

Figure 2 presents a visual breakdown of how students perceived the integration of AI tools in their academic experiences, with data represented as percentages on



**Figure 2:** Student Perceptions of AI Tool Use (N = 60)

the y-axis and categorized perceptions on the x-axis. Student Perceptions of AI Tool Use (N = 60) is a visual information display of how students perceived the use of AI tools in their academic lives and the data was encoded as percentages in the y-axis and the listed perceptions in the x-axis. The bar chart illustrates that most students (85.00) who have tried AI tools found them helpful in enhancing their text comprehension, and thus the majority (75.00) stated that they have seen an improvement in their text comprehension. Moreover, 78 per cent of interviewees have become more confident in the ability to analyze the structures of the text, which shows that AI-based tools can help readers acquire metacognitive and strategic awareness during reading. On the other hand, it was also reflected in the information being quite concerning and challenging. To illustrate, a third of the students said there were technical issues, which points to the fact that usability continues to be a barrier to other learners despite the fact that AI tools are beneficial in instruction. Also, 42% of students admitted that they massively used AI output, which is a significant indication of a threat of dependence that can destroy the acquisition of independent critical thinking skills. Such a varied response indicates the possibilities and constraints of the use of AI tools in learning institutions. The data evidence that although learners usually regard AI tools as helpful in their learning, it is important to pay close attention to the development of instructional designs and direction to balance between an efficient implementation and an encouragement of student autonomy and fluency with technology.

These results demonstrate that AI-based tools require the adequate mediation of the teacher and critical interactions with the AI-generated information to help students develop a better understanding of expository pieces of writing.

## 5. DISCUSSION

### 5.1 AI in Teaching: Facilitating Meaningful Interaction

The introduction of AI-powered discourse analysis tools into the classroom served as another pillar that resulted in more profound interactions between teachers and students themselves, as well as the nature of reading comprehension exercises, hence changing their form. Instead of substituting instructional conversation, AI generated feedback acted as a pedagogical trigger that allowed teachers to activate more specific and dynamic conversations. These tools focused on structures of texts, including the use of transition signals, paragraphs-level coherence, and discourse markers, which were used by teachers to provoke logical thinking of students. The engagement with the AI feedback gave students more excitement to take part in a classroom discussion which led to more classroom activities.

In addition, the use of AI devices allowed educators to tailor teaching in accordance with the reaction of specific students. As an example, when one of the students failed to grasp a rhetorical structure e.g., cause-effect, the product of the AI could enable a teacher to offer scaffolding locally and in context at that time. This interaction mode in real time generated a learning environment that established a balance between automated insights and human mediation such that students became the participants of interpretation and not recipients of AI feedback. Over time, students were able to challenge and critically assess AI recommendations, which enhanced the ability to gain reading independence and metacognitive awareness. In such a way, the AI tools were used not merely as educational resources but as paths between the superficial knowledge and the profound knowledge, as well as to establish meaningful educational communication.

## 5.2 Bridging Gaps Between Surface and Deep Reading

The role of AI-enhanced discourse analysis was transformational as it shifted students' reading behaviors towards surface-level processing and more thorough systematic processing. Conventionally, a good number of EFL students have problems determining the rhetorical purposes of expository texts; they are more concerned with the literal interpretation of texts but not with the way ideas are arranged and passed across. By simply being able to visualize the organization and discourse of text and the use of cohesive devices with the help of AI tools, students became much more aware of the way meaning is built within a text. This also helped them to understand how to compare and contrast, the problem-solution and cause-and-effect patterns which form basic academic reading patterns.

If students worked with such frameworks in real time, they could understand the texts more properly and predict the flow of information, which allowed them to evaluate the material critically and draw conclusions. This proficiency is important in academic accomplishment and is consistent with the higher-order reading skills needed in EFL settings. Moreover, the repetitive activity of working with AI products facilitated by teacher mediation helped students to polish their interpretive practices and enshrine analytical models, advancing to autonomous and profound reading.

## 5.3 Pedagogical Implications for English for Academic Purposes (EAP) and English for Specific Purposes (ESP)

The implications of the findings are significant to the English for Academic Purposes (EAP) and English for Specific Purposes (ESP) context. To help students with the skills required at the tertiary level and workplace, AI tools have the potential to advance the skills of students in their work with complicated academic publications. Transferable skills, including academic reading and analytical writing, which in turn are crucial to the success of professional and academic settings, can be developed with the help of AI tools as they contribute to the development of critical thinking and independent learning.

Additionally, in EAP and ESP classrooms, language teaching is inextricably linked with content mastery and acquisition of academic literacy. AI-driven discourse tools can be useful as scaffolds to understand how a text is written and organized, as well as to learn about the rhetorical conventions that the industrial genre of academic writing is associated with. This comes in very handy in subjects that require one to master specialised texts, such as business, engineering, or the sciences.

Moreover, the combination of these tools will ensure differentiated Students can get individual feedback on their reading regulations and eliminate the gaps in comprehension and improve their mastery of the characteristics of academic discourse. In turn, AI-based tools will assist in providing instant understanding as well as

supporting the future operation of students' language competency and independence in the sphere of EAP/ESP.

## 6. CONCLUSION

### 6.1 Key Takeaways

The paper concentrates on the revolutionary power of AI-driven discourse analysis tools to enhance expository reading comprehension among senior secondary learners of EFL in China. The incorporation of these instruments allowed students to acknowledge complicated discourse structures and inspired a move from passive reading to active, investigative involvement with texts. The existence of AI-produced responses worked as a scaffold, allowing learners to decipher rhetorical patterns like problem-solution, cause-effect, and comparison-contrast with growing self-assurance. Since learners slowly became less dependent on direct supervision and further autonomous in explaining textual indications, the mentor's role developed from the deliverer of the content to the facilitator of profound examination. It is proposed by these findings that Artificial Intelligence instruments can improve cognitive and metacognitive reading tactics if educators can skillfully mediate them.

### 6.2 Practical Applications

Teachers' professional learning can equip them with the skills to interpret and use feedback on discourse from AI to support their students' learning. Easy-to-use AI platforms that meet EFL learners' language and cognitive needs are vital. Curriculum designers should include AI-assisted discourse tasks linked to national standards for curriculum continuity, while classroom tasks with group-based AI discourse analysis can enable peer learning and discussion.

### 6.3 Suggestions for Further Research

Longitudinal research should evaluate the long-term effects of AI-based instruction on student performance. Comparisons between rural and urban schools, proficiency groups and multilingual classrooms will assess its adaptability. Research should further develop AI to support culturally, idiomatically, and symbolically rich language, a challenge for both students and AI models, to understand student perceptions and emotions associated with AI learning to design more learner-centered applications.

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