

A Review of Intervention Studies Investigating How Graphic Organizer Strategies Can Enhance Reading Comprehension Skills among Students with Autism Spectrum Disorder

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Abstract: Students with Autism Spectrum Disorder (ASD) frequently experience difficulties with reading comprehension; however, graphic organizers-as a visual support tool-demonstrate unique advantages in improving their text processing abilities. This paper systematically reviews 18 empirical studies conducted both domestically and internationally investigating the use of graphic organizers as an intervention to enhance the reading comprehension skills of students with ASD. The analysis is conducted across six dimensions: study population, research design, intervention materials, implementation context, target behaviors, and intervention effectiveness. The findings indicate that: (1) Graphic organizer strategies are generally effective in improving the reading comprehension abilities of students with ASD; all 18 studies reported positive outcomes, with particularly consistent and significant effects observed in areas such as story element identification, understanding texts with specific themes, and answering WH-questions; (2) The facilitative effect of graphic organizers on the comprehension of narrative texts is greater than that on expository texts; however, evidence supporting their effectiveness in enhancing deeper reasoning skills remains insufficient; (3) Single-subject experimental designs remain the predominant research methodology in this field, while the integration of these tools into technological platforms and their application within family-based settings represent emerging trends. Nevertheless, only 16.7% of the studies reported maintenance or generalization effects; there is a significant lack of intervention studies conducted in China, and these studies often fail to integrate with existing special education curricula. Future research should focus on strengthening randomized controlled trial designs, expanding the range of educational levels and text types examined, and advancing research on the localized integration of graphic organizers into curricula.

Keywords: Graphic Organizer, Autism Spectrum Disorder, Reading Comprehension, Interventional Research, Visual Support.

1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized primarily by impairments in social communication and interaction, as well as restricted interests and repetitive, stereotyped behaviors [1]. Existing research has shown that, in addition to these core symptoms, individuals with ASD often exhibit significant executive function deficits at the cognitive level [2]; these deficits encompass multiple domains-including planning, working memory, impulse control, inhibition and shift, as well as the initiation and monitoring of actions [3], among which impairments in working memory-being a core component-are particularly prominent [4]. Deficits in working memory can lead to difficulties in individuals with ASD with tasks such as processing information from reading materials, interpreting social cues, and adjusting their own behaviors and perspectives [5].

ASD individuals often demonstrate relative advantages in visual processing [6-7], which creates favorable conditions for leveraging visual support tools to enhance the academic achievement and social interaction of students with ASD. Graphic Organizers (GOs), as a type of visual instructional tool, typically present the relationships among concepts, themes, events, and processes using icons, frames, and graphics [8], thereby assisting students with ASD in organizing and presenting information. This tool first employs "visual and spatial representation" to intuitively illustrate the connections between entities and concepts [9],

then concretizes abstract ideas and links new information to prior knowledge, thereby facilitating students with ASD's understanding of new material and enabling more meaningful learning [10]. Common forms of graphic organizers include the "5W" question organizer, story maps, concept maps, and mind maps [11].

The National Reading Group has identified graphic organizers as one of the effective instructional methods for enhancing reading comprehension [12]. In many countries, graphic organizers are widely used in reading comprehension instruction within general education settings; some scholars have also employed them to improve the reading comprehension skills of students with ASD. In China, however, graphic organizers are primarily utilized in the education of general students, while research exploring their use as an intervention to enhance the reading comprehension abilities of students with ASD remains relatively limited. This article systematically reviews empirical studies conducted both domestically and internationally that employ graphic organizers as an intervention to support the reading comprehension skills of students with ASD. It provides a summary and analysis across six dimensions-research subjects, research design, intervention materials, implementation context, target behaviors, and intervention effectiveness-aiming to clarify the boundary conditions under which GOs-based interventions are effective and to offer insights for relevant research and teaching practices in the field of special education in China.

2. Research Methods

This study conducted literature searches using the China National Knowledge Infrastructure (CNKI), EBSCO, SpringerLink, and Web of Science as primary databases, covering the period from the inception of each database until August 2026. The Chinese search terms included "graphic organizer/story map/thinking map/concept map," "autism/autism spectrum disorder/ASD," and "reading comprehension"; the English search terms included "graphic organizer/story map/thinking map/concept map," "autism/autism spectrum disorder/ASD," and "reading comprehension." Following the initial search, articles were screened and supplemented by reviewing their titles, abstracts, and references. Inclusion criteria for the literature: (1) The study type must be an empirical study; (2) The study subjects must be students diagnosed with ASD using professional diagnostic tools; (3) The intervention strategy must involve a graphic organizer or a variant thereof; (4) The intervention objective must relate to reading comprehension skills; (5) The language of the literature must be Chinese or English. Exclusion criteria: (1) Literature that has been published repeatedly or contains overlapping data; (2) Conference papers presented solely as abstracts without full-text access; (3) Literature not published in Chinese or English. A total of 18 empirical studies were ultimately included, comprising 16 international studies and 2 domestic studies; among these, 14 were peer-reviewed journal articles and 4 were academic theses. The screened literature was systematically organized by author, publication date, research methodology, study subjects, intervention tools, implementation context, intervention domain, and intervention outcome.

3. Research Findings

This study incorporates a total of 18 empirical studies, comprising 16 international studies [13-28] and 2 domestic studies. From an overall distribution perspective, international research in this field commenced relatively early, with the earliest studies dating back to 2011; the number of studies was particularly concentrated between 2013 and 2018, and new research findings have continued to emerge over the past five years; in contrast, domestic research began in 2022, with a very limited number of studies, and is still in its preliminary exploratory phase. Below, we conduct a systematic review and analysis of the included studies from both the international and domestic dimensions.

(1) Current State of International Research

1) Research Subjects and Study Design

Among the studies included, all participants were diagnosed by experts as meeting the diagnostic criteria for autism spectrum disorder as defined by diagnostic tools such as the DSM-IV; additionally, the participants were required to possess a certain level of reading proficiency and to have no severe emotional disorders, among other criteria. The severity of the participants' conditions ranged from mild to moderate and moderate-to-severe. In terms of gender, the majority of participants were male; however, some studies focused exclusively on male children with autism. The participants' ages were primarily those from primary and secondary school age groups. Furthermore, the sample sizes in these studies were relatively small—typically ranging from 3 to 6 students; only Nira Mashal et al. [29] and Issa [30] conducted studies with larger sample sizes, though these were designed as group-controlled experiments. Although studies with small

sample sizes generally have limitations in their findings, they nonetheless provide a preliminary foundation for future large-scale research.

In terms of study design, 15 of the studies employed a single-subject experimental design, one study used an action research approach, one study utilized a one-way repeated-measures ANOVA, and one study adopted a quasi-experimental design.

2) Intervention Materials and Intervention Scenarios

The intervention materials and scenarios exhibit considerable diversity. Among the intervention materials, graphic organizers, story maps, mind maps, Venn diagrams, and WH-questions are widely used as primary strategies to enhance reading comprehension among students with autism spectrum disorder (ASD). Due to their structured visual prompts, these tools effectively assist ASD students in understanding and retaining textual content, thereby improving their reading comprehension skills. For example, Zakas [31] employed graphic organizers to help three ASD students aged 11–13 comprehend expository texts on historical topics; Stringfield et al. [32] utilized story maps to enhance the reading comprehension of three high-functioning ASD students aged 8–11; Nira Mashal et al. [33], through a quasi-experimental design, employed mind maps to improve the metaphorical comprehension skills of three groups of students (ASD group, LD group, and TD group); Carnahan [34], using an ABAB experimental design, applied Venn diagrams to deliver an intervention aimed at improving scientific text reading comprehension among three middle school students with high-functioning ASD; and Bethune Melmark [35] utilized WH-questions as organizers to intervene in the reading comprehension abilities of three ASD students aged 8–10. These studies have all demonstrated positive intervention outcomes, indicating that graphic organizers are significantly effective in enhancing reading comprehension among students with ASD.

Furthermore, technological tools such as AR measurement tools, reading software, and iPad applications offer new avenues for intervention. Stringfield et al. [36] utilized AR measurement tools and reading software, combined with story mapping, to help students with high-functioning autism enhance their reading comprehension skills; Alzahrani [37] employed the Reading Comprehension Booster app on an iPad, integrated with the GO Graphic Organizer, to support a 10-year-old student with autism in improving their reading comprehension abilities. These findings demonstrate that combining technological tools with traditional visualization methods can more comprehensively enhance students' reading comprehension skills.

In terms of intervention settings, the school environment has been the primary choice in most studies—encompassing regular classrooms, special education classrooms, and resource rooms—with 12 studies implementing interventions within school classrooms. The school environment provides natural learning settings that allow students to apply the outcomes of interventions directly to their daily learning activities. For example, Zakas [38] conducted an intervention in school classrooms to enhance the historical text comprehension skills of three autistic students aged 11–13 years; this intervention demonstrated both generalization and maintenance effects. Carnahan [39] conducted a study in a middle school's special education classroom to improve participants' understanding of social studies; the intervention yielded positive outcomes, with both generalization and

maintenance effects observed. Kliemann [40] implemented interventions in both regular education classrooms and special education support classrooms to help autistic students improve their ability to answer WH-questions. These studies demonstrate that the school environment can effectively mitigate the impact of individual differences and facilitate a more accurate assessment of the effectiveness of intervention measures in real-world teaching settings. However, the home and community environments have also received increasing attention; three studies were conducted at home, and one study was conducted in the community. The home environment offers a more personalized and quieter learning atmosphere, which helps reduce external distractions and enhances the effectiveness of interventions. For instance, Ellis [41] conducted an intervention at the students' homes and found that two of the three participants showed significant progress; Jackson [42] conducted an intervention within the community, which improved the participants' ability to answer factual and reasoning-based questions related to scientific texts. These findings demonstrate that family and community settings can provide a more accurate assessment of the generalizability of interventions across different contexts.

The selection of intervention materials and intervention settings plays a significant role in enhancing the reading comprehension skills of students with autism. The graphic organizer has demonstrated notable effectiveness in improving the reading comprehension abilities of students with autism, while technological tools—such as AR measurement tools, reading software, and iPad applications—offer a variety of intervention approaches. The school environment, home environment, and community environment each possess distinct advantages; selecting the appropriate intervention setting can facilitate more effective assessment and broader implementation of these interventions.

3) Target behaviors for intervention

From the perspective of target behaviors, the specific intervention targets selected by the researchers vary; these can be broadly categorized into three types: understanding of specific thematic texts, identification and comprehension of story elements, and understanding of WH-questions.

Among the included studies, five papers focused their interventions on enhancing autistic students' ability to comprehend texts on specific topics. For example, Zakas' [43] study aimed to improve the understanding of explanatory historical texts among three ASD students aged 11–13 years; the results showed a significant improvement in the students' comprehension skills, with a generalizable effect. Schenning [44] focused on enhancing autistic students' understanding of social studies content, particularly issues and solutions within historical contexts. Carnahan [45] employed Venn diagrams to implement a reading comprehension intervention for three high-functioning autistic middle school students in scientific texts; Jackson [46] utilized concept maps in community settings to improve the scientific text comprehension skills of children with ASD. These studies demonstrate that graphic organizers can help students better understand and retain textual content related to specific topics.

Secondly, five studies focused on the comprehension and identification of narrative elements. Stringfield et al. [47] employed a story map intervention to enhance the reading comprehension skills of three high-functioning autistic students aged 8–11; Ellis [48] used story maps to help ASD

students understand and retell the key elements of a story (characters, events, cause, sequence, and outcome), with two of the three participants showing significant progress; Browder et al. [49] utilized an iPad-based digital story map to assist ASD students in comprehending the narrative elements of textual narratives; Drill [50] employed a "Character Story Timeline" tool to improve the reading comprehension of narrative texts; and Alzahrani [51] used the GO app on an iPad to help a 10-year-old ASD student understand narrative elements. All of these studies reported positive outcomes, further confirming the effectiveness of story map-based interventions in enhancing the comprehension of narrative texts.

Three additional studies focused on enhancing the understanding of WH-questions among students with autism spectrum disorder (ASD). Bethune Melmark [52] employed WH-question organizers in an intervention targeting three ASD students aged 8–10 years; Kliemann [53] utilized graphic organizers in both general education and special education support classrooms to help ASD students improve their ability to answer WH-questions; Issa et al. [54] used WH-questions as an intervention tool to support 15 children with ASD. All of these studies reported positive outcomes.

It is worth noting that Mashal et al. [55] employed a quasi-experimental design to utilize mind maps to enhance the metaphorical comprehension abilities of three student groups (ASD, LD, and TD); the study yielded positive results. Weinberg [56] utilized an alternating-treatment design to implement a graphical organizer intervention with six adolescents aged 13–15 with ASD; among these participants, only two showed improvement, while the remaining participants did not respond. This finding suggests that the effectiveness of graphical organizers may be moderated by individual factors such as the participants' baseline reading comprehension level, executive function, and the intensity of the intervention.

4) Intervention Effectiveness

Among the 18 studies, interventions using graphic organizers to enhance the reading comprehension skills of students with autism consistently demonstrated positive outcomes, indicating that this approach can effectively improve such skills; however, only three studies reported sustained and generalizable effects.

El Zein [57] synthesized reading intervention studies conducted on students with autism spectrum disorder (ASD) between 1980 and 2012, with 12 studies meeting the inclusion criteria. The findings indicate that teaching interventions designed to modify and enhance the comprehension skills of students with reading difficulties may improve their reading comprehension abilities when implemented with individuals with ASD. Four of these studies employed strategy guidance approaches, including (a) problem generation; (b) graphic organizers; and (c) making predictions; these studies demonstrated that graphic organizers can effectively enhance the reading comprehension skills of students with ASD. Building on this work, Finnegan et al. [58] systematically reviewed studies conducted between 1989 and 2015 that aimed to improve reading comprehension among students with ASD, synthesized the methodologies from 15 studies, summarized various intervention approaches and measures, and confirmed the positive effects of direct instruction and graphic organizers. Feng Yajing [59] conducted a review of 17 international studies investigating interventions aimed at improving text-based reading comprehension in children with

high-functioning autism, finding that most of these studies utilized single-subject designs; the intervention strategies employed primarily included direct instruction, clarifying referential relationships, the use of graphic organizers, answering preset questions, problem generation, and collaborative learning; and she demonstrated the effectiveness of graphic organizers.

Ma Lan et al. [60] conducted a systematic review of 12 international empirical studies examining the use of graphic organizers in teaching autistic students, analyzing and summarizing the basic components, implementation processes, and applicable domains of graphic organizers. In the reading comprehension domain, graphic organizers help students identify key concepts and their relationships within a text. By utilizing graphic organizers, students were able to extract key information from texts, effectively demonstrating the efficacy of these tools in enhancing the reading comprehension skills of autistic students.

(2) Current State of Domestic Research

Compared to international research, domestic studies investigating the use of graphic organizers to support reading comprehension among students with ASD began significantly later, and the number of such studies is extremely limited. The current review includes only two domestic studies [61-62], published in 2022 and 2025 respectively, both of which are master's theses or journal articles. The specific details are presented in the table below:

1) Study Subjects and Research Design

Wang Jiahui [63] selected two ASD students aged 11–13 as research subjects and conducted an ABA experimental design within a special education school. Dong Jing et al. [64], on the other hand, focused on an 11-year-old male ASD student and employed an action research methodology to progressively refine the intervention protocol through three rounds of action cycles. The participants in both studies were male ASD students in the upper primary school years; their level of impairment was reported as high-functioning or possessing basic reading skills, which is generally consistent with the participant characteristics observed in international research.

In terms of research design, the two domestic studies employed an ABA single-subject design and an action research approach, respectively. The ABA design uses the withdrawal of intervention to verify the internal validity of the effects; however, since no control group was established, it cannot rule out confounding factors such as maturation or historical influences. While the action research approach facilitates the iterative refinement of teaching interventions in practice, its findings are relatively subjective, and there is a relatively limited amount of objective, quantitative evidence available. Compared to the more rigorous single-subject designs—such as those involving multiple baselines or multiple probes—widely used in international research, domestic studies still have room for improvement in terms of research design rigor.

2) Intervention Materials and Contexts

Wang Jiahui [65] used picture-book stories as reading materials and employed the "My Story Map" as a graphic organizers tool to implement an intervention in the individualized education service room for students with autism at her practicum school; her study focused on examining participants' abilities in surface-level and deep-level story comprehension, as well as their capacity to identify story elements. Dong Jing et al. [66] selected Chinese

language textbooks for fifth-grade students in compulsory education (covering four genres: narrative, expository, argumentative, and literary fiction) as reading materials and utilized mind maps as an intervention tool; they conducted their research in an environment where participants were familiar with the setting, quiet, and minimally exposed to external stimuli, aiming to investigate changes in their abilities across four dimensions: information retrieval, comprehension, integration, and expression.

Both studies considered the alignment with school curricular content when selecting reading materials; in particular, Dong Jing et al. [67] directly utilized Chinese language textbooks from mainstream schools, thereby enhancing the ecological validity of their intervention. However, overall, there are currently no studies in China that have adopted the curriculum standards or teaching materials designed for special education schools, nor have they integrated graphic organizers into the daily Chinese language teaching framework. This situation, to some extent, limits the practical application and translation of the intervention's outcomes into actual classroom practice within special education schools.

3) Intervention Effectiveness

Both domestic studies reported positive intervention outcomes. Wang Jiahui [68] found that the story mapping strategy effectively enhanced two ASD students' understanding of both the surface and deeper layers of a story, and led to significant progress in identifying story elements. Dong Jing et al. [69], on the other hand, noted that mind mapping interventions proved most effective in terms of information retrieval, whereas improvements in expressive skills were less pronounced; this divergent finding suggests that graphic organizers may exert different influences on various sub-skills of reading comprehension. Future research should therefore evaluate intervention effectiveness across multiple dimensions.

However, neither of the two studies reported data on the maintenance phase or the generalization phase, nor did they establish a control group for comparative validation. While a small number of international studies have already begun reporting on the generalization and maintenance effects, there remains a lack of relevant evidence in China in this area.

(3) Summary of Domestic and International Research Comparisons

Overall, domestic and international studies share commonalities in the following aspects: (1) All studies have demonstrated the positive intervention effects of graphic organizers on the reading comprehension abilities of students with ASD; (2) The study subjects primarily consist of male students with ASD in upper primary and lower secondary education settings; (3) Although the specific forms of graphic organizers vary, they all share visual and structural characteristics as their core features.

However, there are significant differences between domestic and international research: (1) Number of studies and timing of inception: International research began earlier (2011) and encompasses a larger number of studies (16 papers), whereas domestic research started later (2022) and involves a very small number of studies (2 papers); (2) Rigor of research design: International studies predominantly employ rigorous single-subject designs—such as those featuring multiple baselines or multiple probes—while domestic studies often feature limited design types and lower levels of experimental control; (3) Degree of technological

integration: International research has extensively explored technology-assisted approaches-including the use of iPads, mobile apps, and AR measurement tools-whereas domestic research still primarily relies on paper-based graphic organizers; (4) Dimensions of outcome assessment: Some international studies have incorporated maintenance and generalization assessments, whereas none of the domestic studies have done so; (5) Degree of localization: International studies are largely grounded in local curriculum content, whereas domestic research, although attempting to use standard school textbooks, has not yet been deeply integrated into the curriculum systems of special education schools for students with intellectual disabilities.

The above comparison indicates that research in this field in China is still in its nascent stage; therefore, there is an urgent need for systematic breakthroughs in the scientific rigor of research design, the innovation of technical approaches, and the localized adaptation of intervention outcomes.

4. The Application of Traditional Embroidery Art in Modern Fashion Design

(1) To strengthen the combination of traditional hand embroidery skills and modern industrialization[3]

Intelliop in the long run.[5]

(2) Appropriately weaken the significance of traditional Chinese embroidery patterns[4]

In the production process of traditional embroidery art, many Ho

(3) Innovating the decorative mode of traditional embroidery

Traditional embroidery has developed for thousands of years. Has its own characteristics. The very fixed pattern is accepted by more and more young people. Therefore, in the process of fashion design, there is a monotonous problem, and the decorative pattern is fixed, so the overall variability is less. Clothing haslothing, which makes the three-dimensional effect of the whole clothing stronger and elegant.

5. Conclusion

Based on a comparative analysis and problem diagnosis of the aforementioned domestic and international research studies, this paper proposes the following insights across five dimensions-intervention effectiveness assessment, research design, educational levels and text coverage, technological integration, and localized implementation-aiming to serve as a reference for future research and teaching practices in China.

First, strengthen empirical tracking of maintenance and generalization effects. Among the 18 studies currently included, only three (16.7%) reported data from the maintenance phase, and only three reported generalization effects; the vast majority of studies stopped at the immediate-effect assessment and were unable to address key questions such as "how long will the intervention effect last?" or "can students transfer the strategy to new texts and new contexts?" Therefore, future research should incorporate measurements of both the maintenance and generalization phases as essential components of experimental designs. In practice, a complete time series-including the baseline phase, intervention phase, withdrawal phase, and maintenance phase-should be planned during the experimental design stage; the maintenance phase should include at least two-three measurement points, with

follow-up assessments conducted at weeks 1, 2, and 4 after the intervention concludes; generalization measurements should cover two dimensions: text generalization (using new texts with different themes or genres than the intervention materials) and context generalization (altering the intervention setting, the intervener, or the instructional format). In single-subject designs, maintenance-phase data can be incorporated into trend analysis and effect size calculations to quantify the magnitude of the maintenance effect.

Second, promote the evolution of research designs toward higher levels of evidence. Among the 18 included studies, single-subject designs accounted for as much as 83.3%; two domestic studies also employed case-only designs. The lack of randomized controlled trials and group-comparison studies limits the external validity of the findings and makes it challenging to establish evidence-based practice guidelines with high generalizability. While maintaining the suitability of single-subject designs for the heterogeneous ASD population, it is recommended that future research gradually incorporate study designs with higher levels of evidence. Specific approaches include: prioritizing small-sample randomized controlled trials-with samples consisting of 12–20 ASD students randomly assigned to an intervention group (receiving GOs instruction) or a control group (receiving conventional reading instruction), followed by pre-and post-test assessments as well as follow-up measurements; employing alternating treatment designs to compare the differential efficacy of various forms of graphic organizers within the same participant, thereby providing direct evidence for the selection of personalized intervention strategies; and conducting a meta-analysis based on the current 18 original studies to calculate the pooled effect size of the GOs intervention, thereby clarifying its overall effect magnitude and the moderating variables in reading intervention for individuals with ASD.

Third, expand the coverage of educational stages and the range of text types. Current research predominantly focuses on students from the upper primary grades through junior high school (ages 8–17); however, there remains a significant research gap regarding preschool-aged children (ages 3–6) and students in senior high school or above (ages 18 and older). Interventional texts are primarily narrative; intervention studies involving expository, argumentative, or poetic texts are exceedingly scarce. Future research should systematically extend its scope to both the lower and upper educational stages and systematically compare the differential effectiveness of GOs across various text types in enhancing reading comprehension. At the operational level, GOs tailored for preschool children with ASD could be developed-centered on picture-based story maps-where visual symbols are used instead of textual labels to foster early narrative comprehension skills during parent-child shared reading or group reading activities; for high school students with ASD, GOs templates aligned with specific text structures could be designed-using expository or argumentative texts directly relevant to academic curricula (e.g., chapters from science textbooks or social studies materials), such as causal diagrams for texts with causal structures or comparative matrices for texts with comparative-contrastive structures; additionally, it is recommended to include a comparative condition-such as a narrative text group versus an expository text group-in the same study to examine whether the facilitative effect of GOs varies across different text genres, thereby clarifying the

boundaries of their applicability.

Fourth, deepen technological integration and pay attention to the technological adaptation characteristics of individuals with ASD. Seven international studies have already incorporated technological tools such as iPad applications, AR measurement tools, and electronic touchscreens; in contrast, two domestic studies still exclusively rely on paper-based graphic organizers, indicating that the level of technological integration remains significantly lagging. However, more critically, existing research rarely involves the specialized, adaptive design of technological tools based on the perceptual and cognitive characteristics of individuals with ASD. In the future development and application of graphic organizer-based technological tools, it is essential to fully consider the attentional patterns, perceptual preferences, and executive function levels of students with ASD and implement functional adaptation designs. Specifically, interface design should adhere to the principle of low visual interference-minimizing unnecessary animations, pop-up windows, and decorative elements-and use high-contrast color blocks to distinguish information hierarchies, with each page presenting only one core conceptual relationship; interaction methods should provide structured click paths, following a three-step operational flow of "first select the text paragraph, then drag the key information, and finally generate the relational diagram" to reduce the working memory load during task initiation and execution; feedback mechanisms should employ immediate visual feedback-such as color changes or graphical jittering when students input information into the wrong position-to avoid increasing the cognitive load associated with text processing; additionally, an adaptive difficulty adjustment feature could be developed to dynamically adjust the level of prompting within the GOs framework based on the student's accuracy rate, thereby providing tiered support for task completion.

Fifth, accelerate localized research and promote the integration of the special education curriculum system. Currently, there are only two domestic studies-one utilizing picture-book stories and the fifth-grade Chinese language textbook used in mainstream schools, respectively-and no study has yet combined GOs-based intervention with the curriculum standards for special education schools or the "Life Language" textbook. This lack of integration makes it challenging to implement the findings of such research in the daily teaching practices of special education schools. It is recommended that future research systematically integrate GOs strategies into the "Life Language" curriculum framework for special education schools, develop supporting teaching resources, and explore sustainable classroom teaching models. Specifically, narrative and expository texts from the "Life Language" textbooks (grades 3–9) used in special education schools could be selected; standardized GOs teaching templates could then be designed separately for each grade level and text genre, resulting in a "Graphic Organizer Teaching Resource Handbook" that can be directly utilized by frontline teachers. At the classroom level, a "Five-Step Embedded Teaching Method" could be developed-comprising pre-reading, oral/silent reading, GOs scaffolding presentation, collaborative filling-in, and retelling and expression-thereby incorporating GOs as a fixed teaching component rather than an additional task in Chinese language reading classes. Additionally, 2–3 special education schools could be selected for frontline Chinese language teachers to implement GOs-based teaching in real classroom settings;

through an "Plan–Action–Observe–Reflect" action research cycle, the teaching approach could be continuously refined, thereby accumulating localized practical evidence. Regarding outcome assessment, reading comprehension assessment tools aligned with the curriculum objectives of special education schools should be developed; the effectiveness of the intervention could be evaluated across four dimensions-information extraction, simple inference, integration and generalization, and evaluative reflection-rather than directly applying mainstream school assessment standards.

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