



Effectiveness of Graphic Organizers in Improving Reading Comprehension among Students with Learning Difficulties

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Abstract

Objectives: This study examines the effectiveness of graphic organizers in improving reading comprehension among students with learning difficulties.

Methodology: The quasi-experimental approach was used. Graphic organizers were applied to the experimental group, and the same content was taught to the control group using the traditional method. Validated measures including a reading comprehension test and a reading comprehension list were administered to collect data and to score the test results.

Findings: The findings show a significant difference between the teaching methods in developing reading comprehension skills in the post-test in favor of the experimental group, who were taught using graphic organizers.

Implications: The findings highlight the effectiveness of graphic organizers in improving reading comprehension among students with learning difficulties.

Conclusions: The researcher recommends using graphic organizers to teach reading comprehension to students with learning difficulties in Jordan.

Key words

Graphic Organizers, Learning Difficulties, Reading Comprehension.

Introduction

Language consists of reading, writing, verbalism, and reading comprehension, among others. Reading comprehension is fundamental for acquiring experience, developing knowledge, and achieving academic success. Students who struggle with this skill often face difficulties meeting academic demands; therefore, it is an important element in assessing students' performance. A general weakness in reading comprehension skills is observed among students at different educational levels, especially among those with learning difficulties. This weakness can be attributed to teachers' lack of adoption of effective instructional strategies or the use of inappropriate teaching methods. Moreover, teachers' limited understanding of the needs and characteristics of students with learning difficulties ultimately hinders their access to suitable learning opportunities necessary for their success. This is a crucial issue that impacts the educational process, and so students need to be trained to improve their abilities and skills to enhance reading comprehension. This examines the effectiveness of graphic organizers in improving reading comprehension among students with learning difficulties.

Learning difficulties are a relatively new category compared to other special education categories, as they are classified as non-observable disabilities. For this reason, many students with learning difficulties suffer from neglect in certain areas, which has led researchers to focus on identifying effective strategies to address the challenges these students encounter (Rahleh et al., 2021; Ziadat & Sakarneh, 2022). Various definitions of learning difficulties have emerged, but the most widely accepted among researchers are the definitions of the Federal Government and the Joint National Committee, who define learning difficulties as: "Disorder in one or more of the basic psychological processes involved in understanding or using spoken or written language, which may mani-

fest itself as a deficiency in listening, thinking, speaking, writing, spelling, or in performing mathematical operations." (Al-Khateeb, J. et al., 2009; Sakarneh & Al-Swelmyeen, 2021, p. 20).

Reading is one of the most important skills that plays a significant role in individual's linguistic growth and cognitive development. At the same time, reading difficulties are among the most common problems encountered by students with learning difficulties (Al-Makahleh & Sakarneh, 2016; Al-Makahleh & Sakarneh, 2017). Reading involves perception, recognition, pronunciation, comprehension, and critical thinking, with reading comprehension being the "essence of the reading process". These factors form the foundation upon which the entire educational process rests. Reading is also a fundamental requirement for academic performance, making deficiencies in it a direct cause of underachievement across disciplines. This issue is particularly serious given its close connection to the development of other academic skills, as no subject can be mastered without reading (Waqfi, 2009).

Moreover, reading, together with other language skills like listening, speaking, and writing, constitutes a core language system widely regarded as essential. This system serves as a foundation for language acquisition and is utilized in educational settings as well as across various aspects of daily life. (Abu Al-Hayja & Alsaadi, 2003). It has thus become essential to focus on reading challenges, especially for students with learning difficulties, with particular emphasis on reading comprehension.

Researchers strive to find strategies and interventions in an attempt to alleviate the suffering of students with learning difficulties, but these attempts have not reached the required scientific level to produce a clear and measurable impact on students' im-

provement, as they were often mere replications of methods used with typically developing students. Afterwards, different psychological theories introduced new educational concepts, models, and frameworks. These approaches, such as behaviorism and cognitivism, influenced the development of intervention programs, strategies, and teaching methods, allowing for more systematic and theoretically grounded practices.

Nevertheless, many teachers are not familiar with the scientific principles of direct instruction, leading them to assume that their teaching practices are scientifically grounded when, in fact, they are not. Moreover, the teaching methods employed with these students are often insufficiently evaluated or critically examined (Sabayleh & Sakarneh, 2023).

Currently, many educators are leaning towards the cognitive and metacognitive approach when teaching individuals with reading difficulties. (Sakarneh et al., 2022). The cognitive approach has a significant impact on improving certain skills among students with reading difficulties, particularly reading comprehension. This has encouraged many teachers to adopt these cognitive strategies when teaching students with reading difficulties (Lerner & Kline, 2006; Mercer & Pullen, 2009).

Reading comprehension is a complex process that requires readers to understand and recall prior experiences to interpret and grasp the text by employing all the necessary mental skills (Ferrer. M. et al., 2011). "Reading comprehension is the core of the reading process that the educational system aims to instill in students; it elevates them to a level of awareness and understanding, qualifying them as readers possessing actual functional reading skills that enable them to comprehend texts at advanced levels, leading them to a refined degree of awareness, a more precise understanding of the text, and an ability to understand

and analyze the author's purpose. This enables readers to make objective judgments on what they read in light of their high reading comprehension level" (Al-Sayyed, 1988, p. 15).

Goodman (1994) considers reading comprehension as "The process of extracting the explicit or implicit meaning of written or spoken material, where the reader's focus is on narrowing the gap between their prior knowledge and the text information (p. 15). Meanwhile, Zeitoun & Zeitoun (2009) add that," Reading comprehension is an active mental process in which linguistic, cognitive, and perceptual factors interact to understand the meaning, idea, concept, or message that the writer intends to convey" (p. 20).

Building upon the points previously discussed, "Reading comprehension is a mental process that requires several processes such as understanding, interpretation, analysis, reconstruction, critical thinking, and making judgments. The aim of this process is to derive the explicit or implicit meaning that the writer intends, by utilizing prior experience and making informed judgments about the text" (Zaiton & Zaiton, 2009, p. 22).

Many behavioral, cognitive, and developmental strategies have emerged to provide therapeutic programs for those with learning difficulties. Wong (2004) pointed out that studies, particularly those from abroad, confirm the effectiveness of using direct instruction and reciprocal teaching strategies in improving reading skills and developing reading comprehension abilities among students with learning difficulties (Malkawi et al., 2023).

Previous studies showed that there are several interacting factors that play a significant role in the reading comprehension process, such as the text characteristics (Nassr & Manasra, 2010); reader traits,

including intelligence level, background knowledge, grammatical competence, and the ability to focus, analyze, and investigate (Swanson & Delapaz, 1998; Al-Helwani, 2003); as well as reading comprehension strategies and the purpose of reading (Abdel-Bari, 2010; Choo et al., 2011; Al-Dolaimi, 2014).

On the other hand, Ashour and Miqdadi (2019, p. 9) define reading comprehension as “The knowledge and facts that the reader understands and infers based on their background knowledge. This process begins with recognizing written symbols, words, and the relationships that connect them, followed by understanding the meanings and implications of these symbols to know the author’s intent. In conclusion, comprehension is an interactive process between the reader and the text author”.

Hence, the main aim of this study is to adopt a strategy that supports the enhancement of reading comprehension among students with reading difficulties. The study focuses on the strategy of graphic organizers based on Ausubel’s theory of meaningful learning, where the learner systematically links prior knowledge with new information, making it easier to retrieve this information when needed (Zaini et al., 2010).

Previous literature indicates that graphic organizers help present information in an easy, sequential, and clear way, making it easier for students with learning difficulties to remember by forming mental images of the learned material (Fathallah, 2007). Graphic organizers are defined as “Drawings or visual presentations used by the teacher to organize information in a way that facilitates the process of understanding and learning new information” (Zaini et al., 2010).

Moreover, DiCecco & Gleason (2002), pointed out that graphic organizers connect concepts through vi-

sual presentations that are stored as mental images. Visual items are learned more easily than auditory items, as they make the learning process more enjoyable for students (Asqoul, 2002; McElroy & Coughlin, 2009; Miranda, 2011; Al-Shammari, 2012). Depending on the nature of the material to be taught, graphic organizers can take various forms: hierarchical, conceptual, sequential, evaluative, relational, and cyclical structures like cause-and-effect diagrams, comparison and contrast charts, flowcharts, main idea maps and detail maps (Strangman et al., 2004; Zaini et al., 2010, p. 10). Since graphic organizers are so important, they must be clear, effective, and closely related to the educational content (Baxendell, 2003).

Al-Debes (2005) examined the impact of using the reciprocal teaching strategy and semantic mapping in developing reading comprehension skills in English among upper primary stage students in Jordan. The results showed no significant differences attributed to gender, but with significant differences attributed to the interaction between the strategy and gender.

The results of Hassan’s study (2008) also indicated that there are significant differences at the level of ($\alpha = 0.05$) in students’ performance on the reading comprehension test in favor of the experimental group who were taught in the reciprocal teaching and mind maps.

The results of a study conducted by Beydogan & Bayindir (2010), demonstrated the impact of the “sample-to-rules” approach compared to traditional methods in teaching grammar supported by concept maps.

Al-Shammari (2012) stated significant differences in favor of the experimental group in building technical written images based on conceptual maps, and in developing the skills of creative thinking, fluency,

flexibility, and originality.

Al-Balwi (2014) adopted the experimental approach to gauge the impact of a program based on graphic organizers in improving reading comprehension skills at the literal and inferential levels for a sample of students with learning difficulties in the Kingdom of Saudi Arabia. Al-Balwi found out that there are significant differences at the level of ($\alpha = 0.05$) in favor of the experimental group, who were trained on graphic organizers in the overall score of reading and comprehension. There were also significant differences at the level of ($\alpha = 0.05$) in favor of the experimental group in the level of literal and inferential reading comprehension.

Al-Zaboun & Al-Natour (2017) checked the impact of graphic organizers on the development of writing skills among students with learning difficulties. The results showed a significant impact of using graphic organizers on the development of writing skills.

Muflih (2019) examined the effectiveness of using visual organizers in improving the reading and writing skills among students with learning difficulties from the perspective of resource room teachers. The results showed that the most prominent element in the effectiveness of using visual organizers to improve reading and writing skills among students with learning difficulties is their ability to read sentences enhanced with images, as well as distinguishing between a character's images and its written form. There were also differences attributed to the gender impact in favor of females, and significant differences due to the impact of academic qualifications, with no significant differences due to experience.

The study conducted by Al-Shawashrh & Al-Magableh, (2021) aimed to verify the impact of using electronic mind maps on developing reading compre-

hension among 9th grade students and their attitudes towards reading. To achieve this aim, the researchers prepared a list of reading comprehension skills and their behavioral indicators, in addition to a teacher's guide that includes objectives, methods, and evaluation. They also prepared an objective multiple-choice test to measure the performance of the study subjects in reading comprehension skills. The researchers also prepared another scale to measure the students' attitudes towards reading. The results showed a significant difference in the reading comprehension skills (literal, interpretive, and critical) individually and collectively, and in attitudes towards reading, between the performance of the study subjects in the two groups, in favor of the experimental group.

Al-Sarraj (2021) carried out a study to investigate the impact of using narrative on developing reading comprehension skills among 2nd grade students. The results showed significant differences in the post-test of reading comprehension between the experimental group and the control groups in favor of the experimental group.

The study conducted by Muhaidat & Al-Smadi (2021) aimed to investigate the impact of using paraphrasing (RAP: Read, Ask, and Put) on improving reading comprehension at both the literal and inferential levels among a sample of students with learning difficulties. The results indicated significant differences between the mean scores of students in both groups on the overall reading comprehension test levels in favor of the experimental group, which is attributed to the training program. Furthermore, there were no significant differences between the mean scores of students on the overall reading comprehension test levels based on gender in the post-test. The results also indicated no significant differences between the mean scores of students on the post-test and follow-up tests in the overall reading comprehension test

levels, which means maintaining the positive impact achieved by the training program even two weeks after the post- test.

Al-Zhafiry (2024) carried out a study with the aim of developing reading comprehension skills among students of Saad Al-Abdullah Academy for Security Sciences (SAASS), through a proposed strategy based on post-constructivist methodology. To achieve the study aim, a questionnaire on reading comprehension skills was developed, and a reading comprehension skills test was administered. The experimental approach was adopted with a quasi-experimental design applied on both the experimental group and the control group. The research results showed the impact of the proposed strategy in developing reading comprehension skills among (SAASS) students.

Problem & Questions

Most of the reviewed previous studies that dealt with reading comprehension and graphic organizers emphasized the importance of teaching strategies, especially modern ones like graphic organizers, in achieving effective learning and in developing an active learner. In addition, previous literature confirmed the need to focus on developing the skills of the students with learning difficulties by using the activities and teaching strategies that assist them in developing both their daily living skills and their educational skills. These learners require support to stimulate their reading comprehension skills to develop language acquisition. Reading is an educational necessity that may be difficult for students with learning difficulties to acquire if not being trained properly on them. Moreover, some students come from backgrounds where they do not practice reading properly, with the result that they may lack self-confidence, which could affect their personalities and make them prone to introversion. Therefore, learners should practice the reading skill repeatedly until they master

it well and the best way to do so is to present it in simple introductory tasks and to use graphic organizers (Lee & Nilson, 2004). A literature review of the Arabic literature on educational programs and strategies for students with reading difficulties reveals a scarcity of studies in this field. This may be justified given the lack of an Arabic definition for learning difficulties and the absence of accurate scientific statistics on the prevalence and types of learning difficulties, despite the increasing number of students identified in mainstream schools as having learning difficulties (Lerner and Kline, 2006; Mercer and Pullen, 2009).

This has placed an additional burden on teachers, necessitating them to develop and use strategies and teaching methods to assist these students to acquire academic skills, especially reading skill, due to the significant impact of reading on acquiring other sciences and knowledge.

This study highlights the effectiveness of graphic organizers in improving reading comprehension among a sample of students with learning difficulties. A set of effective methods and strategies has been available to assist special education teachers in resource rooms in teaching primary students with learning difficulties, as they are the most widespread category of learning difficulties. In addition, scientific research on this category focused on developing therapeutic programs that contribute to helping them overcome their challenges. Most of the methods and strategies proposed by researchers have focused on two main ideas: reading and decoding symbols, and understanding meaning (Mercer and Pullen, 2009). Upon teaching reading, most reading education programs refer to three levels of reading: developmental reading, corrective reading, and remedial reading (Al-Sartawi et al., 2001)

There is a noticeable weakness in reading com-

prehension among students in general, and among students with learning difficulties in particular, as observed by the researchers' work in the field, through relevant indicators, and as shown by the results of studies conducted by the Measurement and Evaluation Centre in the Curriculum Directorate of the Ministry of Education (MoE) in Jordan, along with educational observations. This emphasizes the importance of developing strategies, such as graphic organizers, to improving reading comprehension among students with learning difficulties.

A review of previous studies suggests that there are some Arabic studies in this field, but most of them, to the best of the researchers' knowledge, were conducted on primary and secondary students, with the exception of a few studies on higher education students, and a scarcity of studies concerning students in the first three primary grades, or students with learning difficulties. Previous studies highlighted the importance of adopting modern educational strategies in developing students' skills, and they generally agree on the importance of graphic organizers in developing language skills, especially reading. To the researchers' knowledge, this study is the first in Jordan that examines the effectiveness of graphic organizers on enhancing reading comprehension among students with learning difficulties.

Specifically, the current study aims to answer the following question:

Are there significant differences at the level of ($\alpha < 0.05$) in reading comprehension attributed to the teaching method (graphic organizer- traditional), gender (male, female), and the interaction between the teaching method and gender?

The following sub questions arise from the main question:

1. Are there significant differences in reading comprehension attributed to the teaching method?
2. Are there significant differences in reading comprehension attributed to gender?
3. Are there significant differences in reading comprehension attributed to the interaction between the teaching method and gender?

Study Significance

This study highlights a key element of learning for students with learning difficulties, that is, reading. This study introduces an educational strategy that can effectively address reading comprehension errors among students with learning difficulties. Graphic organizers play a significant role in developing learners' comprehension abilities and enhancing the linguistic skills involved in the reading process. Hence, it is essential to adopt educational strategies that help in developing the linguistic skills, especially reading comprehension, of students with learning difficulties.

It is also hoped that the current study contributes to the existing literature on graphic organizers and their role in developing reading comprehension, and in demonstrating the ability of learners with learning difficulties to read and comprehend. This can be done through helping them to enhance their reading comprehension skills.

This study derives its significance from the need of this group of students for many activities and programs based on such strategies. Teachers, the MoE, and those responsible for preparing and implementing curricula should consider the needs of these students for special reading teaching strategies and methods. Lerner (2023) points out that the academic failure of these students may be attributed to the limited educational opportunities or the restrictive traditional methods of education that lead to frustration and failure. The foregoing demonstrates the theoretical and

applied significance of this study.

Study Limits and Limitations

- This study was conducted in the resource rooms of Assalt Directorate of Education for the Academic Year (2023/2024).

- The study sample consisted of (40) male and female students from the 5th primary grade, who are diagnosed with learning difficulties and who are enrolled in educational resource rooms.

- Accuracy of diagnosing students as well as the level of their cooperation with the researchers and the teachers who taught them using graphic organizers.

- Individual differences among the study subjects made it difficult to control all individual characteristics such as motivation and cognitive level.

- Accuracy of the tools and their psychometric properties.

- The number of training sessions was only (22), held during the first semester.

Procedural Definitions

Learning difficulties: The inability of students with learning difficulties to process reading material, demonstrated by not mastering the reading comprehension skills, regarding how to use the specific skills involved.

Graphic organizers: Representing ideas, processes, events, scientific phenomena, laws and principles, relationships, or structures visually through maps, shapes, diagrams and symbols to simplify their components in a concise form making it easier for the individual to perceive and understand them.

Reading comprehension: Students' ability to read a text and identify the main and secondary ideas in the text; to know synonyms and antonyms; to form meaningful sentences by rearranging given words; to state general objectives, and to understand implicit mean-

ings. This was measured in the current study through a special test prepared for this purpose. Procedurally, reading comprehension is defined as the score a student achieves on the reading comprehension scale that was developed for this purpose.

Study Variables

Independent variable: Teaching method using graphic organizers, traditional teaching method, gender, interaction between the teaching method and gender.

Dependent variable: Scores of study subjects on the reading comprehension test prepared for this purpose.

Methods and Procedures

Study Population

The study population consists of all students with reading comprehension difficulties in the 5th grade enrolled in the resource rooms of Assalt Directorate of Education, with a total number of (120) male and female students.

Study Subjects

The sample size consisted of (40) male and female students from the 5th grade with reading comprehension learning difficulties enrolled in the resource rooms of Assalt Directorate of Education across 15 schools, for the Academic Year (2023-2024), randomly distributed into two groups with (20) male and female students each for the experimental group and the control group.

Table (1): Distribution of the Study Subjects

	Male	Female	Total
Experimental Group	10	10	20
Control Group	10	10	20
Total	20	20	40

Study Approach & Design

This study is classified as a quasi-experimental study, where the experimental variable, represented by the teaching program based on graphic organizers will be controlled to study its impact on the dependent variable, which is reading comprehension.

Procedures

1. The researchers conducted a pre-test for reading comprehension for both the experimental group and the control group.

2. The researchers met with the teachers involved in implementing the program based on using graphic organizers as a teaching method, where the program was explained in terms of its goals and how to apply it. In another meeting, the teachers were trained on how to implement the graphic organizer strategy, and a feedback was provided for each teacher.

3. Application phase: Teaching according to the graphic organizer strategy took an entire semester with two sessions per week for the experimental group.

4. The researchers monitored the program implementation through paying periodic visits to the teachers. During these visits, they answered the teachers' simple queries without interfering in the way the program was implemented nor trying to influence the teaching process.

5. Finally, the researchers applied the post-test for reading comprehension for both the experimental group and the control groups.

Study Tools

- A reading comprehension test for the 5th grade students with learning difficulties

- A list of reading comprehension skills used as a criterion for correcting the test

- A teaching method based on graphic organizers.

First. Reading comprehension test for the 5th grade students with learning difficulties

A test through which reading comprehension skills of the 5th grade students with learning difficulties are measured. The test was prepared based on:

A situational test of various language and reading comprehension texts was used. The researchers verified the test validity and reliability using the required statistical treatments. The psychological, cognitive, and educational literature was reviewed, including foreign and Arabic scientific studies, and reading comprehension scales. The researchers also referred to the Arabic language curricula of the Jordanian MoE, and consulted several Arabic language teachers and supervisors to benefit from their experience.

A reading comprehension scale was adopted. This is a situational reading comprehension test that gives the student the chance to select one of the given texts. The student reads for at least one minute in Standard Arabic, and his reading is recorded on a tape. The test includes a set of behavioral indicators of sub-reading skills (comprehension), in addition to a set of behavioral indicators of conversation sub-skills: language fluency, body gestures, sentence coherence, organization and sequencing of ideas, and meaning representation.

A list of reading comprehension skills was created in which the behavioral indicators for each skill were identified by reviewing previous educational literature, and a set of appropriate situations was selected for each behavioral indicator. An assessment card was designed for reading comprehension to analyze

responses, as each card includes sub-skills with three behavioral indicators for each skill, graded on a five-point scale.

Tool Validity

The tool validity was assessed by presenting the test to 9 professional reviewers: university educators, educational supervisors, and teachers in the MoE. After reviewing the reviewers' opinions, the tool was produced in its final form and was ready for implementation. Using the SPSS software, the responses of a group outside the study sample, consisting of 20 students, were analyzed to calculate the difficulty and discrimination indices of the test items, as shown in Table (2).

Table (2): Item Difficulty & Discrimination Indices

No.	Difficulty Index	Discrimination Index
1	0.65	0.55(*)
2	0.30	0.73(**)
3	0.35	0.63(**)
4	0.25	0.77(**)
5	0.40	0.61(**)
6	0.75	0.49(*)
7	0.55	0.63(**)
8	0.40	0.65(**)
9	0.50	0.54(*)
10	0.40	0.67(**)
11	0.50	0.62(**)
12	0.40	0.44(*)
13	0.40	0.67(**)
14	0.60	0.48(*)
15	0.35	0.45(*)
16	0.40	0.65(**)
17	0.40	0.70(**)
18	0.35	0.59(**)
19	0.45	0.71(**)
20	0.50	0.55(*)

* Significant at (0.05)

** Significant at (0.05)

Table (2) shows that the difficulty indices of the items ranged between (0.25 - 0.75). Meanwhile, the discrimination index ranged between (0.44 - 0.77).

Based on what Oudeh & Al-Khalili (2000, p. 30) pointed out," The accepted range of item difficulty as well as item discrimination is between (0.20 - 0.80). An item is considered good if its discrimination index is higher than that range; acceptable and should be improved if its discrimination index is between (0.20 - 0.39); weak and should be deleted if its discrimination index is between (0 - 0.19); and items with negative discrimination should be deleted". Therefore, none of the items were deleted based on difficulty indices or discrimination indices.

Tool Reliability

The tool reliability was verified using the test-retest method on a sample consisting of (20) students outside of the study sample. The overall score of the tool was (0.89). Reliability was also verified using the internal consistency method and the Kuder-Richardson formula, resulting in a value of (0.81) for the entire test, which is considered enough for the study purposes.

Second. Reading comprehension list

The reading comprehension list included skills prepared by the researchers, with criteria for judging the students' skill quality. The list was used by the teachers when assessing students' performance in the test. The list was prepared by referring to the curricula of the Jordanian MoE for the Arabic language, and by consulting several Arabic language teachers and supervisors to benefit from their experience.

Validity of the Reading Comprehension List

The reading comprehension list validity was verified by presenting it in its initial form to a group of specialists in the Arabic language, special education, and a group of teachers and supervisors. Ninety-five percent (95%) of the reviewers agreed on the fitness degree of paragraphs, with some proposed modifications including deleting some paragraphs and adjust-

ing to the linguistic formulation of some others.

Reliability of the Reading Comprehension List

To verify the reliability of the reading comprehension skills list, the internal consistency reliability coefficient using Cronbach's alpha was calculated for the tool. The reliability coefficient was (0.90), which is enough to conduct the study.

Third. Teaching method based on graphic organizers

The researchers developed a teaching method based on graphic organizers to enhance the reading comprehension skills of students with learning difficulties in the 5th grade, after reviewing previous studies related to this topic. The teaching method included 22 training sessions, held twice a week, with each session lasting 40 minutes. Each session consisted of a set of objectives expected to be achieved upon completing the session, in addition to models, illustrative diagrams, and a range of training activities to help students understanding the skill.

A teacher guide was prepared, which included an introduction to the teaching method based on graphic organizers strategies, ideas to activate the teacher's role in the training sessions, and how to proceed in the lesson up to the final evaluation stage.

Content Validity

The content validity of the teaching method based on graphic organizers was verified, by presenting it to (6) reviewers from Jordanian universities, (3) teachers specializing in Arabic language, and (3) supervisors from Assalt Directorate of Education. The reviewers' feedback was minimal, comprising of some linguistic modifications and the arrangement of objectives. These comments were considered and implemented.

Afterwards, a meeting was held with the teachers who applied the teaching method to the experimental group; they were introduced to the method and

trained on using it. Necessary arrangements were made to ensure proper implementation. The teachers who implemented the method were being monitored through attending classes and providing feedback.

Statistical Analysis

To answer the study question, the means and standard deviations were calculated, in addition to producing the Analysis of Covariance (Two- way ANCOVA) using SPSS software.

Results

Research Question

Are there significant differences at the level of ($\alpha < 0.05$) in reading comprehension attributed to the teaching method (graphic organizer- traditional), gender (male, female), and the interaction between the teaching method and gender?

To verify this hypothesis, the means and standard deviations of the scores of the 5th grade students with learning difficulties in Jordan on the overall reading comprehension test for both pre- test and post- test were calculated according to the variables of the teaching method and gender, as shown in Table 3.

Table (3): Means and standard deviations of the scores of 5th grade students with learning difficulties in Jordan on the overall reading comprehension test for both pre- test and post- test according to the variables of teaching method and gender

Teaching Method	Gender	Pre-test		Post-test		Average
		Mean	SD	Mean	SD	
Graphic Organizers	Male	11.30	2.312	17.40	2.319	10
	Female	11.10	2.132	17.10	1.101	10
	Total	11.20	2.167	17.25	1.773	20
Traditional	Male	9.60	3.596	15.30	2.312	10
	Female	11.50	3.171	15.10	1.595	10
	Total	10.55	3.441	15.20	1.936	20
Total	Male	10.45	3.069	16.35	2.498	20
	Female	11.30	2.638	16.10	1.683	20
	Total	10.88	2.857	16.23	2.106	40

Table (3) shows that there are significant differences between the means of scores of the 5th grade students with learning difficulties in Jordan on the overall reading comprehension test in both pre-test and post-test according to the teaching method and gender. To determine whether these apparent differences are significant, a two-way ANCOVA was used for the post-test of the overall reading comprehension test according to the teaching method and gender after controlling the effect of the pre-test. The results are shown in Table (4).

Table (4): Results of the two-way ANCOVA analysis for the post-test scores of 5th grade students with learning difficulties in Jordan on the overall reading comprehension according to the variables of teaching method and gender and the interaction between them after controlling the effect of the pre-test

Variation Source	Sum of Squares	D.F	Square Mean	F Value	Significance Level	η^2
Pre- test	25.815	1	25.815	8.648	0.006	0.198
Teaching method	34.036	1	34.036	11.401	0.002	0.246
Gender	2.451	1	2.451	0.821	0.371	0.023
Teaching method $\times$ Gender	0.652	1	652.	0.219	0.643	0.006
Error	104.485	35	2.985			
Total	172.975	39				

Table (4) shows significant differences at the significance level of ($\alpha = 0.05$) in the reading comprehension scores of the 5th grade students with learning difficulties in Jordan based on the teaching method, where the (F) value was (11.401) with a significance of (0.002), which is a statistically significant value. This indicates the impact of the teaching method based on graphic organizers. To determine to whom these differences are attributed, the adjusted means and their standard errors were calculated according to the teaching method, as shown in Table (5). Table (4) also shows that the effect size of the teaching method was large; the value of Eta squared (η^2) accounted for (24.6%) of the predicted variance in the dependent

variable, which is the reading comprehension test. In addition, no significant differences were found at the level of ($\alpha = 0.05$) that can be attributed to the effect of gender, where the (F) value was (0.821) with a statistical significance of (0.371). No statistically significant differences were found at the level of ($\alpha = 0.05$) that can be attributed to the interaction effect between the teaching method and gender, where the (F) value was (0.219) with a statistical significance of (0.643). Overall, the results in Table (4) indicate that the differences were in favor of the students who were taught using the graphic organizers method compared to the results of the students who were taught using the traditional method.

Table (5): Adjusted means and standard error for the scores of the 5th grade students with learning difficulties in Jordan on the reading comprehension test according to the variable of teaching method

Teaching Method	Mean	Standard Error
Graphic Organizers	17.154	0.388
Traditional	15.296	0.388

Discussion

The results of the study revealed a significant impact at the level of ($\alpha = 0.05$) on the reading comprehension scores of the 5th grade students with learning difficulties in Jordan, according to the teaching method. This impact is attributed to using graphic organizers which work on connecting the parts to the whole, thus forming an integrated mental image using sight to compose this image. It is widely known that visual perception is one of the most effective means for learning and information retrieval, particularly in reading comprehension tasks that require information organization and interpretation, and graphic organizers offer a way to break down complex texts into smaller, clearer parts.

This is also attributed to the fact that customized educational programs based on graphic organizers play a pivotal role in improving the reading compre-

hension performance of students with learning difficulties. Furthermore, educational programs specifically designed for students with learning difficulties usually rely on more adapted and interactive teaching methods compared to traditional teaching. Such programs are sensitive to the needs of students with learning difficulties, which leads to greater engagement, more understanding of the learning content, and improvement in their reading comprehension performance.

Numerous studies have demonstrated that the teaching methods that are based on active guidance, continuous interaction with students, and immediate feedback enhance understanding and develop students' comprehension abilities. Specialized educational programs based on graphic organizers develop strategies that meet the needs of this group and help them organize their ideas and information, thus improving reading comprehension and text understanding, because they simplify information and present it in a structured way that makes it easier for students with learning difficulties to understand. Graphic organizers reduce cognitive complexity and provide a visual aid that helps students organize information in a way that facilitates understanding.

Graphic organizers are most effective in expository texts, which rely on understanding causal relationships and abstract concepts that can be illustrated through visual aids. Meanwhile, graphic organizers are particularly useful in narrative texts when the focus is on event sequence or character analysis.

The results showed no significant differences attributed to gender, indicating that both male and female students experience the same challenges in terms of reading comprehension. This may be explained by the fact that performance differences are more closely related to instructional factors (such as teaching strat-

egy, and individualized support), or personal factors (motivation level, and coping with difficulties) rather than gender itself.

This finding is consistent with the results of the study conducted by Muflih(2019) which showed that the most prominent element in the effectiveness of using visual organizers to improve reading and writing for students with learning difficulties is "The ability to read sentences enhanced with images and without images, as well as distinguishing between a character's image and its writing".

The results are also consistent with the results of the study carried out by Hasan (2008) which indicated that there are significant differences at the level of ($\alpha = 0.05$) in students' performance on the reading comprehension test in favor of the experimental group who studied according to reciprocal teaching and mind maps, with no significant differences attributed to gender, or to interaction between the teaching methods and gender. The results are also consistent with the results found out by Al-Shammari (2012) of significant differences in building technical written images, and in developing the skills of creative thinking, fluency, flexibility, and originality in favor of the experimental group, and with the results found out by Al-Balwi (2014) of significant differences at the level of ($\alpha = 0.05$) between the experimental group, who were trained on graphic organizers and the control group who were trained in the traditional method in the overall score of reading and comprehension skills. There were also significant differences at the level of ($\alpha = 0.05$) between the control group and the experimental groups, in favor of the experimental group on the literal and inferential comprehension levels in reading.

The results of this study are also consistent with the results of a study carried out by Al- Zboun &

Al-Natour (2017) which showed a significant impact of using graphic organizers on the development of writing skills in the fields of format and content on the post-test in favor of the experimental group.

Recommendations

- Integrate graphic organizers systematically into the teaching of reading comprehension skills for fifth-grade students with learning difficulties in Jordanian schools, given their proven effectiveness in enhancing reading performance.

- Provide specialized professional training for teachers on how to design and implement graphic organizers effectively within classroom instruction, ensuring alignment with students' individual learning needs.

- Incorporate visual learning activities and graphic organizer models into Arabic language textbooks, particularly in reading comprehension lessons, to facilitate learning and improve reading strategies.

- Conduct further studies to explore the impact of graphic organizers on other variables, such as overall academic achievement, critical and creative thinking skills, or among different groups of students with special educational needs.

- Encourage educational developers to integrate interactive visual strategies into digital learning environments designed for students with learning difficulties, based on the demonstrated effectiveness of graphic organizers.

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Declaration of conflict of interest:

The researchers declare and undertake that there is no conflict of interest with any person or institution. This research has not been previously published in any way, whether written, read, published, visual or audio.

Funding statement:

This research did not receive any financial support.

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