The Impact of Pictures-Based Activities in Enhancing Reading Comprehension Skills Among Young Children

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Abstract

The current research aimed to investigate the impact of integrating pictures-based activities on enhancing reading comprehension skills across different levels: literal, interpretive, and evaluative. The study involved 380 children split into experimental and control groups, with the experimental group (190 pupils) exposed to pictures-based activities, while the control group (190 pupils) was taught conventionally without activities. Findings indicated significantly higher average scores in reading comprehension tests for the experimental group than the control group. Statistical analyses confirmed significant differences favoring the experimental group, demonstrating the effectiveness of pictures-based activities in improving comprehension skills. However, there were no statistically significant differences in performance within the experimental group across different reading achievement levels, suggesting that the benefits of using illustrative pictures were consistent across varying initial reading abilities.

Moreover, the study highlighted that integrating pictures-based activities helped narrow the performance gap in reading comprehension skills among children, particularly benefiting those with lower and average reading achievement levels. This empirical evidence underscores the importance of visual aids in early childhood reading materials to support comprehension development. Based on these findings, the study recommended integrating pictures-based activities in early childhood reading textbooks. It also emphasized the need for effective training of early childhood educators in designing and implementing such activities to optimize their impact on children's reading comprehension skills.

Key words: Language learning, reading, comprehension skills, pictures, children's learning, activities

Introduction

Reading comprehension lies at the heart of the reading process, beginning with recognizing symbols, words, and their relationships, followed by understanding their meanings and implications (Collins et al., 2020; De Gracia et al., 2023). It involves an interactive process between the reader and the text (Hu et al., 2022; Paakkari et al., 2024; Tacuri-Reino et al., 2024; Zarrati et al., 2014). Labajo (2024) suggests that reading comprehension forms the basis of all reading activities, where reading speed and pace are influenced by the reader's ability to understand the written material. Thus, understanding the text is the primary factor in mastering language arts (Azizifar, 2016; Waugh, 2018). This complex process entails diverse cognitive operations, such as linking information in the text with the reader's prior knowledge, analyzing relationships within the text, and connecting the author's ideas with the reader's existing understanding of the text's topic, comparing them with previous knowledge (De Gracia et al., 2023; Labajo, 2024).

Although educators differ in their classification of reading comprehension levels in quantity and nomenclature, these classifications generally share commonalities (Orellana et al., 2024). Therefore, it can be concluded that reading comprehension varies across different levels. Referring to the literature on reading comprehension (Bachore, 2014; Etfitam, 2014; Kuşdemir & Bulut, 2018; Muijselaar et al., 2017; Zarrati et al., 2014), three distinct levels can be identified:

1.   **Literal level:** This level focuses on understanding the factual content within the reading material, such as main ideas, supporting details, and important facts, and linking them.

2.   **Interpretive level:** This level emphasizes understanding beyond the text, including implicit and interpretive meanings related to the reading material. It involves discerning between ideas presented in the text, understanding cause-and-effect relationships, and the ability to infer, deduce, and generalize from the reading material.

3.   **Evaluative level:** This level concerns the practical application of reading material. Learners determine the author's intent, differentiate between fact and opinion, and judge the reading material based on internal and external criteria.

The effectiveness of reading comprehension across its various levels depends on employing specific strategies that significantly contribute to improving its quality (Etfitam, 2014). The importance of these strategies lies in aiding learners to independently understand written texts and develop clear, sequential procedures for comprehension. These efforts help learners overcome passivity, making them more active and effective in developing reading comprehension skills with enthusiasm and a desire to learn (Bachore, 2014; Etfitam, 2014). Al-Hassan et al. (2023) noted that achieving reading comprehension depends on teaching strategies used by teachers in classroom settings to transform reading into a purposeful process that deepens learners' understanding of the material and stimulates their thinking. Similarly, Feldman (2019) argues that the development of language skills, particularly understanding the meanings of written material, depends on providing teaching practices that help children build meaning through activities that integrate personal experiences with new ideas.

Given the abundance of illustrative pictures in children's reading textbooks, using pictures-based activities has become a contemporary approach to enhancing the quality of reading comprehension skills among children (Ahmed, 2018; Alali & Al-Barakat, 2023a; Al-Jawad, 2021). Al-Barakat et al. (2023) confirm that pictures-based activities in reading textbooks are one of the contemporary global trends supporting children's reading skills development. Illustrated textbooks, in a sensory style, are considered one of the learning resources that can help children use language and engage linguistically in various learning scenarios (Ahmed, 2018; Al-Jawad, 2021; Bani Irshid et al., 2023; Fraihat et al., 2022; Khasawneh et al., 2022). In this context, Alali and Al-Barakat (2023b) emphasize the importance of investing in illustrative pictures as a source of activities to enhance reading comprehension levels among children by presenting various linguistic contexts and situations within a continuous communicative and practical framework.

Al-Barakat et al. (2023) and Alali and Al-Barakat (2023a) clarified that linguistic pictures-based activities are an effective approach to making learning more interactive and engaging for children, helping them develop their language skills in a fun and beneficial manner. These activities encompass all practices and procedures within reading learning environments, aiming to use pictures as learning tools to enhance language learning and stimulate comprehension and perception among children. These activities are designed and built around pictures to facilitate the construction of meanings and language concepts in an interactive and participatory visual manner, which can occur between the teacher and children, among the children themselves, or individually at home or school. Theoretical literature and previous studies (Al-Barakat et al., 2023; Alali and Al-Barakat, 2023a; Alali and Al-Barakat, 2023b) outline a set of linguistic activities accompanied by instructional pictures, which can be summarized as follows:

1. Vocabulary acquisition activities: These are designed to guide children to use pictures to learn new words. For example, a picture of an animal can be displayed,

and a series of questions about the picture can be posed to help the child build new knowledge about the animal.

2. Reading comprehension activities involve linking linguistic concepts and terms with pictures to help children better understand the language content embedded in the pictures. Illustrated stories can tie the story events to the pictures to clarify the events.

3. Speaking and listening stimulation activities: Here, pictures are displayed, and the teacher encourages the children to talk about the pictures and engage in discussions to enhance their speaking and listening skills.

4. Writing skills development activities: Children are directed to write sentences and short stories or draw based on the pictures. They are given free association of ideas, enhancing their creative writing skills.

5. Grammar teaching activities: Pictures are used to understand and perceive grammatical concepts such as verbs, nouns, and adjectives. For example, the teacher displays a picture of a child playing with a ball and explains the verbs associated with it.

6. Order and sequencing teaching activities: A series of pictures is designed to help the child understand the sequence of events or steps in a particular process. Children can arrange the pictures according to a logical sequence and narrate the associated story.

7. Critical thinking development activities involve posing questions requiring children to analyze the pictures and think about them critically. These questions can be about small details in the picture or about predicting upcoming events.

8. Social interaction activities encourage children to work in groups to discuss the pictures with their peers, enhancing their cooperation and social communication skills.

Through a deep analytical perspective on how different types of image-based activities influence the enhancement of children's comprehension skills, it can be asserted that presenting information visually aids in reinforcing the cognitive processes associated with understanding. As AlAli et al. (2024) noted, visual learning relies on stimulating multiple areas of the brain by integrating texts and images. This integration contributes to developing deep comprehension skills, allowing children to process information more comprehensively by simultaneously employing visual and textual aspects.

Moreover, image-based activities facilitate reflective reading, enabling children to pause at each image, analyze its details, and relate them to the presented texts. This type of learning encourages children to think analytically, contributing to developing critical and creative thinking skills. This is attributed to the role of images in enhancing the ability to infer and predict, allowing children to derive meanings and anticipate events based on visual details (Al-Shdeifat & Al-Jamal, 2023; Damayanti et al., 2020).

Additionally, activities reliant on images improve focus and attention, as images captivate children and prompt them to pay attention to fine details. The analysis of images also aids in developing oral and written expression skills, as children are required to explain or write about what they observe in the images (Azmuddin et al., 2020; Kica, 2022). This, in turn, enhances linguistic communication and enriches the vocabulary used in dialogue or writing.

Furthermore, images stimulate comprehension and encourage problem-solving and creative thinking. When presented with ambiguous or incomplete images, children are asked to infer solutions or imagine different scenarios, thus opening avenues for exploring new ideas and intellectual innovations (Dahle, 2020). The advancement of digital technology, such as augmented reality, has added a new dimension to using images in education, allowing children to interact with content more engaging and effectively.

In summary, integrating illustrative pictures and associated activities into reading instruction provides a comprehensive approach to developing various language skills. These strategies make learning more engaging and interactive, fostering a deeper understanding and appreciation of reading among young learners.

Alali and Al-Barakat (2023b) underlined that pictures-based activities are closely related to children's visual proficiency. Reading pictures differs from reading non-illustrated texts, as "reading" pictures regularly requires activities to understand language vocabulary. Based on pictures-based activities, children learn how visual art and design elements change the meaning of the text and affect the comprehension of linguistic meanings and connotations.

Language education experts (Al-Barakat et al., 2022; Hu et al., 2022; Paakkari et al., 2024; Tacuri-Reino et al., 2024) emphasize that children view the illustrative pictures included in language textbooks positively when they can understand and interpret the meanings and connotations of the pictures. A research study by Alali and Al-Barakat (2023c) highlighted the importance of pictures-based activities in enabling children to understand the meanings and connotations of pictures. Al-Hassan et al. (2023) linked linguistic proficiency to the extent of children's engagement in activities related to pictures, as children can make judgments about characters as indicated by pictures based on facial expressions, body posture, or the actions of the characters shown in the pictures. These judgments made by children indicate the strength of their linguistic proficiency, especially when children perform activities related to the pictures, allowing them to connect their ideas derived from daily life with what they see in the pictures. Hence, educationalists (Al-Hassan et al., 2012; Al-Barakat et al., 2023; Khasawneh et al., 2023) have emphasized the importance and role of linking activities derived from pictures to the reality of children's lives.

Educational studies (Styat, 2016; Wening, 2016; Yamat et al., 2014) have shown the importance of pictures-based activities in improving children's linguistic proficiency through understanding and comprehending the knowledge embedded in pictures. Wening's (2016) study indicated that children with good linguistic proficiency can better understand written and spoken texts easily if pictures-based activities were used. Similarly, Ahmed (2018) and Al-Jawad (2021) confirmed that pictures increase children's linguistic proficiency by clearly expressing their ideas and questions, contributing to their active participation in the classroom and increasing their chances of receiving help and guidance when needed.

From a psychological perspective, Khafidhoh and Anita (2019) emphasized that picture-based activities significantly develop children's critical and analytical thinking skills and ability to understand and analyze complex texts. This enhancement of skills is pivotal in improving linguistic achievement, as supported by researchers such as Styat (2016), Wening (2016), and Yamat et al. (2014). Children with high linguistic proficiency tend to perform better in tests and academic activities compared to their peers who lack this proficiency.

Furthermore, Izumi et al. (2017) found a link between linguistic proficiency and self-confidence, suggesting that picture-based activities help boost children's self-confidence. This increase in confidence makes them more willing to participate in classroom and social activities, positively impacting their learning experience. Consequently, numerous studies (Dev & Qiqieh, 2016; Lowinger et al., 2014) have concluded that picture-based activities provide children access to various learning resources, including textbooks, articles, and electronic media. This exposure deepens their knowledge and cultural understanding by engaging in picture-enhanced activities.

Numerous studies (Hussain & Khan, 2022) revealed that using pictures in teaching English to non-native speakers is highly beneficial, as pictures activate active learning. Therefore, the study linked the activities accompanying the pictures with

improved language learning. The use of pictures helps make language learning environments more lively, engaging, and productive by using the pictures found in the textbooks used for teaching English. Pictures-based activities are among the most effective and affordable learning tools (Khafidhoh & Carolina, 2019; Macwan, 2015). They can succinctly explain objects, places, or people, capturing their essence and vividly illustrating them (Harmer, 2013; Macwan, 2015). This makes picture-enhanced activities particularly valuable for language learning, as children are naturally drawn to visual stimuli (Harmer, 2013; Khafidhoh & Carolina, 2019). More specifically, Hussain and Khan (2022) underline that pictures engage children, facilitating easier and more effective language acquisition. Teachers can create or source pictures from various places, including digital technology, newspapers, the internet, and textbooks. Textbook pictures, in particular, are often the most relevant and useful for classroom instruction. Unfortunately, many teachers do not fully utilize this resource in language teaching for young learners.

Martens et al. (2012) highlighted the importance of including illustrations and explanatory pictures in reading textbooks as a primary approach to encouraging expression skills. It also requires encouraging learners to discuss their artistic works and understand and interpret visual pictures. In the same context, Tomšič Čerkez's (2015) study revealed the importance of motivating learners to develop their ability to analyze and interpret pictures and other visual materials. A study conducted by Tomljenović (2015) indicated the significant role of teachers in enabling children to communicate through pictures. Moreover, it confirmed the substantial role of teachers in directing children to use pictures to perceive and understand various life phenomena and patterns. Consequently, this study emphasized linking all activities derived from pictures to everyday life situations.

More specifically, Batič (2021) concluded that using pictures was ineffective in children's learning and that pictures-based activities are almost nonexistent, as children cannot read and interpret pictures at the preschool or elementary school levels. Batič also pointed out the absence of activities designed to guide children in building and acquiring knowledge from pictures. This is attributed to incorrect practices by early childhood educators, who primarily focus on words. As a result, pictures are considered less important and are usually not included in interpreting abstract words.

Despite the importance of learning through pictures-based activities in positively influencing children's language learning and improving their linguistic proficiency, no studies in the Jordanian context address it. Previous studies (Al-Barakat & Alali, 2023) have confirmed that the effect of the independent variable related to picture-enhanced activities on improving linguistic proficiency has not been studied in Arab environments, making it one of the most pressing research topics. In light of this, the lack of research studies on pictures-based activities has prompted authors to investigate the impact of activities accompanying pictures in improving reading comprehension skills.

Given the significant weakness among children in Jordan, as indicated by international reading assessment results related to early childhood reading, reading comprehension in early childhood has been considered a multifaceted learning goal, encompassing reading for pleasure, interaction, and developing other language skills. This goal should be addressed from the earliest years of a child's life. Consequently, the Jordanian Ministry of Education has urged early childhood educators to innovate language activities to improve reading comprehension in early education. These learning activities should engage children in the learning process, making them active and productive in knowledge acquisition.

Since learning to read in childhood is closely associated with learning pictures, with 90% of the content in language textbooks being picture-based, this study aims to train early childhood educators to design language learning activities accompanied by

pictures. Additionally, it examines the effectiveness of these picture-based activities in enhancing reading comprehension skills. This study raises the following questions:
1. Does the performance of early childhood children in each domain of the reading comprehension test and the test differ depending on their learning method (picture-based activities versus traditional methods without designed activities)?
2. Does the performance of the experimental group, which was studied using picture-based activities, differ in each domain of the reading comprehension test and the test as a whole, according to the children's reading achievement levels (low, medium, high)?

Research Objectives
The primary objective of this study is to evaluate the effectiveness of picture-based activities in enhancing reading comprehension skills among early childhood children in Jordan. Specifically, it aims to:
1. Assess whether using picture-based activities in language learning improves reading comprehension compared to traditional methods.
2. Determine if the improvement in reading comprehension varies according to the children's initial reading achievement levels.

Methodology
Research Design
In pursuit of the current study's objectives, the researcher employed a quasi-experimental method, represented by the design of two groups (experimental and control). The sample underwent two measurement phases: a pre-test and a post-test following the training. The study involved the following variables:
1. Independent Variable:
- Method: This includes two levels: Learning through activities accompanied by learning pictures and the normal teaching method (without activities).
- Reading Achievement Level: This includes three levels: High achievement (85% and above), average achievement (less than 85% up to 70%), and low achievement (less than 70%)
Dependent Variables: Improvement in reading comprehension, measured through three levels: Literal comprehension skills, interpretive comprehension skills, and evaluative comprehension skills.

Participants
A sample of 380 children was selected and divided into two groups: an experimental group consisting of 190 children and a control group also consisting of 190 children. This sample was drawn from 16 early childhood education schools located in the north of Jordan. The selection process was purposive, based on the willingness and readiness of teachers to cooperate with the implementation of the study. Table 1 below presents the distribution of the study sample in the experimental and control groups according to school academic achievement.

Table 1: Characteristics of the Study Sample

Group	School Academic Achievement	No.
Experimental	High Achievement (85% and above)	59
	Average Achievement (less than 85% up to 70%)	91
	Low Achievement (less than 70%))	40
	Total	**190**
Control	High achievement (85% and above)	62
	Average achievement (less than 85% up to 70%)	90
	Low achievement (less than 70%)	38
	Total	**190**

This table highlights the academic achievement distribution among the experimental and control groups, providing a basis for comparison in the study's analysis.

Research Method

To achieve the study's objectives, the research method used: reading lessons formulated as pictures-based activities, and an achievement test to assess reading comprehension. Below is a detailed description of the research method:

First - Reading lessons formulated as pictures-based activities

Twenty one learning outcomes were determined for the subjects of the seven lessons. Based on the desired objective to be achieved in children after completing the learning process of these lessons, the authors formulated the reading lessons as a series of sequential pictures-based activities. The lessons were presented in light of the principles and foundations of effective teaching design. Accordingly, the activities were designed to include specific language ideas about the content of each lesson. The activities were presented in an enjoyable, beautiful manner that stimulates scientific and linguistic thinking.

To maximize the benefit of the activities accompanied by learning pictures, seven lesson plans were prepared for the lessons implemented through picture-based activities, with one lesson plan for each reading lesson. These were developed from the reading textbook for first-grade children in early childhood education, defining the learning outcomes for each lesson. These plans were developed to align with the objectives and content of the picture-based activities to be taught at that grade level. In formulating the plans, the specifications for writing learning outcomes were considered, along with all necessary learning and learning procedures to achieve the intended learning outcomes. The plans focused on the teacher's role as a guide, counselor, and facilitator of learning, and the student's role as the center of learning. All materials for teaching vocabulary and language structures, such as learning cards, pictures, and worksheets, were prepared, focusing on an integrative approach to reading instruction. Evaluation questions were also specified to assess pupils' learning of the reading lesson content in light of behavioral objectives.

To implement the lesson plans, teachers were trained on how to teach using pictures-based activities. The training covered the following points:

1. Guiding teachers to start using picture-based activities by preparing the child's psychological and mental environment, creating a classroom environment that motivates and excites children to learn, and stimulating the child's imagination through the element of imagination.

2. Focusing on meaningful learning, connecting previous learning with new knowledge. Activities begin by recalling pupils' previous experiences; thus, teachers were trained on how to recall pupils' prior knowledge since reading comprehension depends on the reader's existing knowledge base.

3.Employing an integrative language approach and conducting written and oral activities based on what the student observes, engaging in discussions, dialogues, probing questions, and providing comments on the activity content.

To ensure the activities were properly formulated to improve reading comprehension, they were reviewed by a committee of seven experts in early childhood education, English language teaching, instructional design, and five early childhood education teachers and supervisors. This review process led to some linguistic adjustments to ensure the activities were suitable for the nature of the children.

Second- The achievement test

To investigate the effectiveness of the training program based on activities accompanied by illustrative pictures in improving reading comprehension levels among first-grade children, an achievement test was designed. This test initially consisted of 25 items, aligned with various reading comprehension skills:

1. Literal comprehension skills.
2. Interpretive comprehension skills.
3. Evaluative comprehension skills.

The validity of the test was ensured by presenting it to a group of experts in the fields of language curricula and teaching methods, early childhood education, and early childhood educators and supervisors. Based on their feedback, three items were rephrased to align with the levels of reading comprehension. Subsequently, the test was administered to 27 children from the study population who were not part of the sample. The items were analyzed based on the responses of this pilot sample. Four items were removed based on difficulty and discrimination indices, resulting in a final test comprising 21 items. The difficulty indices for the test items ranged as follows: Literal comprehension: 0.49-0.81, interpretive comprehension: 0.45-0.85, and evaluative comprehension: 0.37-0.89. The discrimination indices for the test items ranged as follows: Literal comprehension: 0.36-0.79, interpretive comprehension: 0.34-0.78, and evaluative comprehension: 0.32-0.76. The discrimination indices for the overall test ranged from 0.13 to 0.81.

To verify the construct validity of the test items, the correlation coefficients for each item with the overall test were calculated, ranging from 0.35 to 0.86, all statistically significant ($p\leq0.05$). Correlation coefficients for each item with its domain were also calculated, as shown in Table 1.

Table 2: Distribution of Test Items by Reading Comprehension Levels and Correlation Coefficients

reading comprehension skills	Number of Items	Correlation Range with Domain*
Literal Comprehension Skills	7	0.38-0.84
Interpretive Comprehension Skills	8	0.38-0.86
Evaluative Comprehension Skills	6	0.36-0.80

* Statistically significant ($p\leq0.05$)

Additionally, the reliability of the test was confirmed by calculating the internal consistency coefficient using the Kuder-Richardson Formula 20 (KR-20) for the same

pilot sample of 27 children. The reliability coefficients for the overall test and the subdomains of reading comprehension skills are shown in Table 3.

Table 3: Reliability coefficients of the overall test and its domains by reading comprehension skills

reading comprehension skills		Number of Items	Correlation Range with Domain*
Literal Comprehension Skills		7	0.87
Interpretive Comprehension Skills		8	0.84
Evaluative Comprehension Skills		6	0.80

These measures ensure that the test is both valid and reliable for assessing the reading comprehension skills of the children in the study.

Data Gathering Procedure
After developing and ensuring the validity and reliability of the study tools, the study was carried out according to the following steps:
1. Contacting School Principals: School principals of the study sample were contacted to obtain permission to implement the study, after explaining the study's objectives and implementation procedures.
2. Obtaining Consent from Teachers: Teachers consented to participate in the study based on their personal willingness and after approval from their school principals. Eight classes were designated for the experimental group and another eight for the control group.
3. Conducting the Pre-Test: A pre-test was administered prior to the commencement of the picture-based learning activities to assess the equivalence between the control and experimental groups. Data analysis was performed using SPSS software, with a T-test used to calculate the means, standard deviations, and the T value for the overall test, as well as for each specific domain of the test: literal comprehension skills, inferential comprehension skills, and evaluative comprehension skills. The findings are presented in Table 4.

Table (4): T-Test findings for the means and standard deviations of children's scores on the pre-test reading comprehension skills

Reading comprehension skills	Group	No.	Mean	Standard Deviation	T Value	Degrees of Freedom	Significance Level
Literal	Experimental	190	2.97	3.16	-0.97	378	0.278
	Control	190	3.00	3.23			
Inferential	Experimental	190	2.99	3.22	-0.56	378	0.434
	Control	190	3.07	3.35			
Evaluative	Experimental	190	2.51	2.89	-0.49	378	0.757
	Control	190	2.56	3.11			
Overall Levels	Experimental	190	8.99	10.32	-0.67	378	0.524
	Control	190	9.10	11.23			

Table (4) shows that the T value and its significance level between the mean scores of the experimental and control groups on the pre-test were not statistically significant ($\alpha \leq 0.05$) for the overall test and for each reading comprehension level, indicating that the two groups were equivalent in their pre-test performance.

4. Conducting a Training Workshop: A training workshop for the experimental group's teachers was held for 15 hours over three weeks, with five hours per week, in accordance with the teachers' free times.

5. Implementing Learning Activities: Pictures-based activities were implemented for the experimental group, while the control group was taught using the traditional method.

6. Administering the Post-Test: The post-test was administered to both the experimental and control groups.

7. Entering and Processing Data: The post-test data were entered into a computer and processed using the SPSS software.

Statistical Treatment of Data

Data related to the post-test were collected at the end of March during the second semester of the 2023/2024 academic year, after the experiment was completed. For the analysis of the achievement test data, means and standard deviations of children's scores from both the control and experimental groups were calculated. The T-test was used to determine the significance of the differences between the mean scores of the children on the reading comprehension skills test according to the method used. Additionally, one-way ANOVA was used to examine the performance of the experimental group based on the variable of the pupils' reading achievement level (low, medium, high).

Findings of the study

The study findings are presented in two parts based on the research questions, as follows:

Part One - Findings of the First Question

The first question aimed to investigate the effectiveness of pictures-based activities in improving reading comprehension skills among first-grade children. It sought to determine if there were statistically significant differences at ($p=0.05$) between the mean performance of the experimental group and the control group on each reading comprehension level and the overall test. The comparison was between the teaching method using pictures-based activities and the regular method without such activities. A t-test was used on the post-test to examine these differences, as shown in Table 5.

Table (5): T-Test findings for means and standard deviations of children's scores on the Post-Test reading comprehension skills

Reading comprehension skills	Group	No.	Mean	Standard Deviation	T Value	Degrees of Freedom	Significance Level
Literal	Experimental	190	17.89	1.867	6.045	378	0.001
	Control	190	11.77	2.167			
Inferential	Experimental	190	16.19	1.2458	7.045	378	0.000
	Control	190	10.27	2.457			
Evaluative	Experimental	190	15.36	1.145	13.455	378	0.003
	Control	190	7.87	2.345			
Overall Levels	Experimental	190	16.29	3.567	11.456	378	0.005
	Control	190	10.81	5.678			

* The mean score was calculated out of 20.

A detailed analysis of the mean scores in Table 5 reveals that the experimental group outperformed the control group across all levels of the reading comprehension test. The experimental group scored 17.89 in literal comprehension, 16.19 in inferential comprehension, and 15.36 in evaluative comprehension. In contrast, the control group scored 11.77, 10.27, and 7.87 in these respective areas. The overall mean score for the experimental group was 16.29 with a standard deviation of 3.567, compared to the control group's 10.81 with a standard deviation of 5.678.

To determine if these differences were statistically significant, the T-test findings showed T values of 6.045 for literal, 7.045 for inferential, and 13.455 for evaluative comprehension, with an overall T value of 11.456. The significance levels indicated that all T values were statistically significant. These findings favor the experimental group, indicating that using activities accompanied by instructional pictures significantly improved reading comprehension levels among first-grade children.

Part Two - Findings of the second question

The second question aimed to determine if there were differences in reading comprehension test levels among pupils in the experimental group who learned using activities accompanied by learning pictures, based on their reading achievement levels (high, medium, low). To achieve this, the means and standard deviations of the experimental group members' performance were calculated for their reading comprehension skills levels: literal, inferential, and evaluative comprehension, as well as their overall performance on the combined reading comprehension test levels. The findings are presented in Table 6.

Table (6): Means and standard deviations on the reading comprehension test according to the reading achievement level variable

Reading levels	Reading achievement level of experimental group children	No.	Mean	Standard deviation
Literal Comprehension	High Achievement (85% and above)	59	17.88	1.001
	Average Achievement (less than 85% up to 70%)	91	16.59	1.731
	Low Achievement (less than 70%)	40	15.24	1.989
	Overall	190	16.34	1.857
Inferential Comprehension	High Achievement (85% and above)	59	16.23	0.664
	Average Achievement (less than 85% up to 70%)	91	15.66	2.001
	Low Achievement (less than 70%))	40	14.60	2.003
	Overall	190	15.77	1.245
Evaluative Comprehension	High Achievement (85% and above)	59	15.39	0.991
	Average Achievement (less than 85% up to 70%)	91	14.64	1.241
	Low Achievement (less than 70%))	40	13.89	1.830
	Overall	190	15.20	1.346
Overall Levels	High Achievement (85% and above)	59	16.05	1.178

Reading levels	Reading achievement level of experimental group children	No.	Mean	Standard deviation
	Average Achievement (less than 85% up to 70%)	91	15.45	2.007
	Low Achievement (less than 70%))	40	14.56	1.245
	Overall	190	16.23	1.756

Table 6 presents the means and standard deviations of the experimental group pupils' scores on the reading comprehension test levels, based on their reading achievement levels. The means for literal comprehension were 17.88, 16.59, and 15.24; for inferential comprehension, 16.23, 15.66, and 14.60; and for evaluative comprehension, 15.39, 14.64, and 13.89. For overall reading performance, the means were 16.05 (high achievement level) with a standard deviation of 1.178, 15.45 (medium achievement level) with a standard deviation of 2.007, and 14.56 (low achievement level) with a standard deviation of 1.245.

Despite slight differences in mean scores across the reading comprehension test levels, significant improvement was observed in pupils with medium and low reading achievement. To verify the effectiveness of the pictures-based activities, a one-way ANOVA was conducted to determine if the differences in mean scores were statistically significant (p=0.05). The findings are shown in Table 7.

Table 7: One-Way ANOVA - Differences in Reading Comprehension Skills by Reading Achievement Level in the Experimental Group

Reading Comprehension Levels	Source of Variation	Sum of Squares	Mean Squares	Degrees of Freedom	Calculated F Value	Significance Level
Literal Comprehension	Between Groups	45.447	19.865	2	1.689	0.158
	Within Groups	504.679	12.987	177		
Inferential Comprehension	Between Groups	31.456	17.891	2	1.356	0.157
	Within Groups	678.056	11.887	177		
Evaluative Comprehension	Between Groups	26.388	14.194	2	0.588	0.451
	Within Groups	568.676	11.698	177		
Overall Reading Comprehension Levels	Between Groups	106.768	48.789	2	1.045	0.108
	Within Groups	1677.187	36.659	177		

The one-way ANOVA findings in Table 7 indicate no significant differences between the mean scores of the experimental group members across different reading comprehension levels. The F values for literal, inferential, evaluative, and overall comprehension were 1.689, 1.356, 0.588, and 1.045, respectively, all of which were

not statistically significant at (p=0.05). This confirms that the pictures-based activities effectively improve reading comprehension skills.

Discussion

The study findings indicate that the overall mean performance of the experimental group on reading comprehension skills tests was significantly higher at 16.29, compared to the control group's lower mean performance of 10.87 on the same test. This highlights a clear difference between the two groups' acquisition of reading comprehension skills. Specifically, the experimental group used pictures-based activities and achieved higher arithmetic means across all reading comprehension skill areas. In contrast, the control group exhibited lower arithmetic means on the same comprehension skills test. This suggests that the control group struggled more with understanding and acquiring these skills, especially critical reading skills, where their arithmetic mean was 15.36, compared to the experimental group's higher mean of 17.87 in evaluative comprehension.

In light of these arithmetic variations, the T-test findings (t-test) demonstrated statistically significant differences (p=0.05) in the performance levels of the experimental and control groups on achievement tests, favoring the experimental group.

This superiority can be attributed to the picture-based activities, which significantly piqued the children's interest and curiosity and positively influenced their learning motivation. Many pupils expressed enthusiasm for learning through these activities during the study period. This result aligns with previous studies (Makumbila & Rowland, 2016; Matuchniak et al., 2014; Naidoo et al., 2014; Tong et al., 2014; Vaughn et al., 2017) that emphasize the role of engaging in learning activities in enhancing children's motivation and enthusiasm for learning, which positively impacts the development of their reading comprehension skills.

This classroom approach motivates pupils to engage comfortably, exchange ideas, share information, and ask questions. This aligns with previous studies (Klapwijk & Van der Walt, 2010; Kruizinga & Nathanson, 2010; Lesaux et al., 2014; Schaffner & Schiefele, 2016; Yang et al., 2017; Yeo et al., 2014), which suggest that storytelling positively contributes to the development of children's reading skills.

The study's findings of no significant difference in the experimental group's performance on the reading comprehension test based on reading achievement level underscores the effectiveness of pictures-based activities in developing reading comprehension skills among pupils with lower reading abilities. The increased understanding among these pupils may be attributed to these activities enabling them to handle illustrative pictures and activate their self-learning, thus enhancing their confidence in interacting with teachers in classroom situations. This result from the study aligns with global trends in developing reading comprehension skills as a tool to enhance children's self-confidence (Yang et al., 2018).

Moreover, this outcome has positive implications for children's learning because building self-confidence through reading comprehension helps children become more prepared to face reading challenges, making them more willing to engage in reading and explore new texts (Schaffner & Schiefele, 2016; Yang et al., 2017; Yeo et al., 2014). This motivation increases their exposure to reading materials, enhancing their understanding and linguistic abilities. In addition, self-confidence in reading comprehension plays a role in overcoming difficulties because children who believe in their reading abilities are more prepared to tackle complex texts and meanings. This capability helps them overcome obstacles without feeling frustrated (Schaffner & Schiefele, 2016; Yang et al., 2017; Yeo et al., 2014).

From the perspective of constructivist theory, increased self-confidence encourages children to engage in critical thinking in developing reading comprehension (Abdelhadi et al., 2011; Asadi et al., 2017). When children trust their reading abilities,

they are more willing to think critically and analytically about the texts they read (Asadi & Khateb, 2017; Khudair & Abu Gazal, 2016). This enhances their ability to derive meanings, draw conclusions, and understand different contexts (Khudair & Abu Gazal, 2016). Consequently, self-confidence empowers them to independently handle learning tasks without continuous reliance on teachers or parents. This promotes independence and allows them to enjoy reading as a part of their daily lives (Abdelhadi et al., 2011; Asadi et al., 2017; Asadi & Khateb, 2017; Khudair & Abu Gazal, 2016).

Conclusions, Recommendations, Limitations, and Future Research Directions
The study's findings indicate that picture-based activities are among the most effective learning practices for enhancing reading comprehension skills in childhood. Specifically, the findings reveal that activities accompanied by illustrative pictures significantly increase children's understanding of texts across all reading levels. These findings emphasize the limitations of traditional teaching methods, especially when educators lack knowledge of strategies that foster advanced reading skills, such as critical reading. In contemporary education, reading is no longer merely about recognizing letters and pronunciation; it has evolved into a cognitive activity that involves problem-solving and intellectual engagement. Therefore, implementing strategies promoting reading comprehension is crucial for helping pupils apply their reading skills in various contexts.
Based on these findings, it is recommended that the Ministry of Education prioritize training childhood teachers in designing and utilizing diverse picture-based activities within reading curricula. These activities should be carefully crafted to meet the developmental needs of children, ensuring that the child remains at the center of the learning process. Additionally, reading textbooks should integrate a series of well-structured picture-based activities to enhance both engagement and comprehension.
However, this study also presents noteworthy limitations that warrant attention. The data were collected from a limited sample of first-grade children (ages 6-7), which did not consider the challenges these children face when learning to read through picture-based activities. Moreover, the study's focus on a single government school in Jordan during the second semester of the 2023/2024 academic year may restrict the generalizability of its findings. Therefore, future research should expand the sample to include various school types, such as public and private institutions in urban and rural areas, as well as children experiencing reading difficulties.
Moreover, future studies should investigate how picture-based activities can be more successfully integrated into curriculum design, ensuring that these activities align with children's varying comprehension levels. Comparative studies examining the effectiveness of static images, animations, and multimedia tools would provide valuable insights into which visual aids are most effective for reading education. Another promising direction for research is to explore the long-term effects of picture-based activities on reading skills development and the sustainability of these skills over time. Moreover, examining the role of teacher training in effectively using these learning tools is vital, as it could significantly improve learning outcomes for children, especially those facing reading challenges.
Finally, future research could focus on developing integrated learning programs that use visual activities while considering individual differences among pupils and their varying responses to these activities. Such an approach would empower educators to create customized learning experiences that cater to the unique needs of their pupils, ultimately enhancing their reading skills. Furthermore, it would be beneficial to investigate the relationship between traditional picture-based activities and digital images, considering the potential for providing children with diverse picture-based activities at home and in school.

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Words: 8579
Characters: 61 875 (34 standard pages)

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