The Effectiveness of Electronic Practical Presentations in Developing Semantic Memory Skills in Kindergarten Children

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Abstract

Semantic memory skills are crucial in childhood to support children with flexibility and adaptation and facilitate the learning process, which requires a memory that stores information, knowledge, and facts surrounding a person, known as semantic memory. Therefore, this experimental study was conducted to determine the effectiveness of electronic practical presentations in developing semantic memory skills in kindergarten children. The study sample included (60) kindergarten children who were divided into two groups, the experimental and the control groups. Each group consisted of (30) children. This experimental research used various surveys and scales, some of which were developed by the researchers. As well, pre-test, post-test, and follow-up measurements were applied to both the experimental and control groups. Lastly, electronic practical presentations were constructed to enhance children's semantic memory skills. The results revealed statistically significant differences in the pictorial semantic memory skills in favor of the experimental group. The study also found a significant improvement in the dimensions of visual semantic memory skills for the children in the experimental group. The study confirmed that the effectiveness of electronic practical presentations relies on clarification, explanation, and interpretation, leading to enhanced development of semantic memory skills and improved acquisition and retention of information in children's memory. That leads to advocating for considering well-constructed electronic presentations as a modern teaching strategy in children's education.

Keywords: Electronic practical presentations - semantic memory skills - kindergarten child.

1. Introduction

Early childhood, extending from the fourth year of a child's life, is the period during which the child acquires fundamental concepts that grow with age. This stage is characterized not as a traditional educational phase focused on memorization and rote learning, but rather as a period that fosters the child's creativity (Al-Sherbini, 2020).

However, in light of the rapid technological advancements of the present era, which have added new dimensions to information transfer from the traditional form to the digital form with the presence of the internet, the importance of early childhood in shaping the child's personality and preparing them to face the challenges of the current and coming centuries, represented by

scientific and technological progress, is increased. This stage is considered a turning point from traditional methods to modern approaches. Therefore, this research aims to adopt modern strategies in presenting concepts to children in a way that prevents them from becoming bored with repetition and encourages them to engage repeatedly. Additionally, children at this stage are characterized by their curiosity and inquisitiveness, leading some to label this period as the stage of exploration and curiosity.

Given that the past century was dominated by conventional educational methods relying on rote learning from the teacher and memorization from the learner, this led to the marginalization of their roles in discovery, interaction, and creativity. Learners' academic success was judged based on their ability to recall information, without considering their individual differences and diverse needs, and with little focus on practical and applied aspects that enhance their intelligence and enrich their thinking.

This necessitates the use of innovations that were an inevitable result of the scientific advancements brought about by the information revolution. These innovations align directly with the characteristics of the modern era as they are interactive, qualitative, and integrative. Key factors that accelerated the emergence of these innovations in the field of education include the communication and the information revolution.

This is evident in the significant developments that have occurred in curricula, where there has been a pressing need for the utilization of digital teaching and learning strategies that align with the technological revolution witnessed globally. These strategies assist children in acquiring and developing skills and concepts. Within modern curricula, the child is considered the central focus in all activities, with emphasis on self-directed activities suitable for the era of experimentation, trial, and discovery. Children are encouraged to engage in free play, with a rejection of coercion, and a focus on principles of flexibility, creativity, innovation, and inclusivity. Creating such an environment necessitates a rich array of educational activities (Al-Felfly & Al-Ansi, 2014).

Here emerges the importance of employing teaching strategies that suit the capabilities of children and consider their individual differences. Such strategies facilitate their understanding of the content in a manner closer to the reality they experience, aiding them in its application. This is particularly applicable to semantic memory skills, which require a presentation and practical application that mirrors real-life scenarios.

Future trends in early childhood education focus on providing an interactive educational environment filled with attention-grabbing stimuli. This includes presentations, games, and electronic programs such as animations, videos, e-books, songs, electronic chants, and children's drawings displayed through modern technological means, all of which facilitate interactive learning experiences.

This was evident in a study conducted by(Mohammed ,2021), which highlighted the effectiveness of electronic presentations of children's drawings in developing narrative creativity among kindergarten children.

The researchers explain that the strategy of electronic practical demonstrations is one of the most effective strategies in attracting the child's attention and motivating them to learn. This is

because it presents to children on a computer screen, including various YouTube clips, which encompass sound, images, and animations, all of which play a significant role in capturing children's attention and providing them with concepts and information. It also helps in explaining a certain idea, law, or scientific phenomenon. Since children in early childhood learn through insight learning, multimedia programs, with their capabilities in images and soundsallow children's responses to appear in a form that suits them and prepares them for the stage of abstract thinking. (Saleh, 2000)

The results of the study by(Ibrahim and Khalil,2018) indicated that technologically presented digital programs have a positive impact on children and make information delivery easier and faster. They also highlighted the significant and effective role these programs play in the preschool stage in terms of their ability to develop skills. Based on the above, the researchers used electronic practical demonstrations as a strategy to develop semantic memory skills in kindergarten children due to their ability to enhance these concepts in children at this stage.

(Stephen ,2003) emphasized that using computer programs in early childhood education leads to the development of children's cognitive aspects..

In support of this, the study by(Ahmed and Al-Louzi ,2019) indicated that knowledge provided to children and associated with practical application leads to faster comprehension and understanding of information. Similarly, the study by Abdel Mawjoud et al. (2021) relied on this in preparing a program based on the electronic practical presentation strategy through YouTube to develop some fine manual skills among high school female students. The results of the study showed the effectiveness of the electronic practical presentation strategy and the development of positive attitudes among students towards its use.

Shaheta's study (2019) aimed to assess the effectiveness of using the practical presentation strategy in the achievement of sixth-grade students in Islamic education in the Naour district. The study's results showed statistically significant differences between the average performance of the two study groups in the post-application of the achievement test in favor of the experimental group that studied using the practical presentation strategy. The study recommended the need to train Islamic education teachers on the practical presentation strategy.

The study by(Abdel Mawjoud ,2021) aimed to determine the effectiveness of the proposed program based on the electronic practical presentation strategy through YouTube in imparting some manual skills to high school female students, developing their attitudes towards manual work and small projects, and identifying the correlation between acquiring some manual skills and their attitudes towards manual work and micro-projects. The main results were: the development of positive attitudes among students towards using the electronic practical presentation strategy through YouTube for learning useful things, and the acquisition of some manual skills as models for micro-project products.

The previous studies demonstrate that the electronic practical presentation strategy is effective in teaching across various educational levels and age groups. This is because it presents experiences, concepts, and information in an understandable and comprehensible manner, in an attractive and engaging way that helps increase concentration. It also aids in retaining information. Therefore, the researchers observed the effectiveness of electronic practical

presentations in developing semantic memory skills among kindergarten children, as it is suitable for this goal and positive results are expected from its use.

The current research agrees with previous studies on the importance of applying the electronic presentation strategy in education, by following the experimental method for both the experimental and control groups, and the effectiveness of the strategy in the post-application in favor of the experimental group and between the two groups in favor of the experimental group. Among these studies are(Al-Rusai ,2017), (Shaheta ,2019) and Thahir et al. (2019). Some studies differed in the sample, such as(Al-Rusai ,2017) and Abdel Mawjoud (2021), where the latter used high school female students while the former used a sample of elementary school children.

The previous presentation highlighted that the electronic practical presentation strategy is not a secondary matter but has become essential and a fundamental requirement of education in our current era, characterized by a technological and informational explosion.To achieve learning, there is a need for memory on which the processes of perception and understanding depend. The ability to remember is one of the important mental functions in individuals' lives and their learning. Memory skills are measured through recognition, learning, retention, and recall (Abu Awwad & Dabbous, 2019). To support the processes of learning, retention, and recall, it is necessary to choose a teaching method that suits the requirements of the modern era.

(Viet-Nhitran, 2021, 363).

Many studies on early childhood education have emphasized that science is a pathway to learning and exploring the surrounding world. Memory is the gateway to knowledge, learning, and cognitive growth; it is the repository of human experiences and knowledge from birth to the end of life. Children's memories are fundamental to the formation and development of their personalities. Memory is one of the most important higher mental processes in human life, and many other processes depend on it, such as perception, awareness, learning, thinking, and recalling. Through memory, individuals retain all their past experiences and knowledge they have encountered throughout their different life stages; it allows the entry, encoding, processing, retention, and retrieval of experiences and knowledge as needed (Dhahadha & Sharadqa, 2022).

Semantic memory skills are crucial in childhood as they help children with flexibility and adaptation and facilitate the learning process, which requires a memory that stores information, knowledge, and facts surrounding a person, known as semantic memory. Consequently, this type of memory holds great importance because it is responsible for storing all the knowledge we learn in a way that makes it easy to retrieve at any time.

From the above, the importance of developing semantic memory skills in kindergarten children is evident, prompting the researchers to prepare a program based on the electronic presentation strategy to develop these skills. This is crucial at this age.

Semantic memory refers to all the general information and skills stored in memory that can be recalled independently of the conditions or methods under which they were learned (Saad Al-Tayeb, et al., 2020). This means that semantic memory contains all facts that are not tied to specific times or places (Khashawi & Fadel, 2000), which humans acquire through their

interaction with the external world via the senses. These impressions exist as mental images associated with pleasant or unpleasant feelings and emotions.

The relationship between semantic memory and knowledge is similar to the relationship between learning inputs and outputs. Knowledge, with its quantitative and qualitative characteristics, concepts, facts, laws, and theories, forms the cognitive units that constitute the memory of meanings or semantic memory (Abdel Salam, Hanan, 2018).

Therefore, the current research addressed the development of semantic memory skills using electronic practical presentations, including:

- Semantic Recognition Skill (Body Parts Recognition): This refers to a child's ability to recognize their body consciously with cognitive awareness. The process of recognizing objects starts with the self. For a healthy child, the age of body recognition is typically between two to three years.

- Semantic Naming Skill (Image Naming) (After Object Recognition via Images): This measures the lexical and vocabulary stock of the examined child and their ability to evoke the semantic concepts represented in the images. It also illustrates the ability to semantically link between signifier, signified, and mental representations of objects surrounding the child in their external world, after recognizing objects through images.

- Semantic Sound Recognition Skill: This refers to identifying the nature of the presented sound, assessing the child's ability to link between the auditory stimulus present in the environment and the semantic concepts it contains. It provides insight into the child's auditory perception, semantic understanding, and classification of meaningful sounds.

- Semantic Classification Skill: This refers to understanding the child's ability to classify and arrange the semantic items in their daily life, expressed through images of living and non-living things. It contributes to the judgment process of objects, aiming to determine the child's ability to differentiate between items, provide justifications, and offers significant insight into the organization of semantic concepts in the child's semantic memory.

- Semantic Judgment Skill: This refers to measuring the child's ability to issue appropriate judgments and semantic understanding, or discernment. It demonstrates their ability in the classification process by identifying the image that does not belong to the represented group on each card.

- Lexical Semantic Skill: This refers to the child's ability to retrieve concepts and definitions from their semantic memory, providing a clear picture of their lexical and sufficiency or deficiency.

- Semantic Recall Skill (Verbal Fluency): This refers to determining and knowing the child's stock of acquired items stored in their semantic memory. It illustrates the child's ability for spontaneous recall of semantic concepts and remembering through verbal semantic references.

- Semantic Understanding and Functional Sentence Linking Skill: This refers to assessing the child's ability for functional semantic comprehension and determining the qualitative characteristics of the objects surrounding them in their daily life. It also evaluates the child's

ability to link sentence understanding with specific characteristics of the item depicted in the relevant image.

- - Directed Semantic Drawing Skill: This refers to observing the child's ability to link semantically between acquired conceptual mental images and graphical representation on paper. This dimension provides insight into the depth of semantic acquisitions and the child's surroundings during their life. It also measures the child's ability to remember.

Research Problem:

The research problem became evident from the observation of the two researchers, indicating deficiencies in kindergarten teachers' focus on developing semantic memory skills. Also noted was the scarcity of studies addressing these skills among kindergarten children to the best knowledge of the researchers. Additionally, many early childhood educators were observed to rely on conventional teaching methods, which emphasize rote learning for the learners. Therefore, it has become necessary to utilize effective teaching strategies such as electronic practical presentations that have an impact on developing the memory of kindergarten children by building new knowledge upon the existing knowledge of the learner about the learning subject. Furthermore, many researchers have attempted to study the factors that determine the level of memory performance, not only focusing on the amount of retrieved material or activating the retrieval process but also on the type or pattern of the retrieved material and its relationship with the processes of retention and recall. Thus, the continuity, sustainability, and effectiveness of learning depend on the type and level of processing of the material on the subject of learning.

Furthermore, the problem was highlighted by the observation of teachers neglecting the element of repetition in education, which is fundamental for the retention of information in the child's memory. Instead, they rely on superficiality and lack of depth in knowledge presentation. The problem also became apparent through a questionnaire administered to children to assess their level of semantic memory skills by directing some questions to them about their surroundings. The questionnaire results revealed a weakness in the level of semantic memory skills among kindergarten children. To confirm the problem, the researchers conducted a survey study by administering a questionnaire to a sample of kindergarten teachers, numbering 20 teachers. The questionnaire aimed to identify the extent of kindergarten teachers' focus on developing semantic memory skills and to determine the teaching strategies used by the teachers, with the goal of identifying and enhancing them. The results showed that 76% of teachers rely on lecture-based teaching methods. Additionally, 74% of teachers did not address semantic memory skills, and 71% of teachers were unaware of what semantic memory skills entail.

Building upon the preceding discussion and drawing from the recommendations of previous studies emphasizing the necessity of integrating electronic practical presentations into the educational process, such as the study conducted by Abdulrahim et al. (2022), which advocated for activating the technological aspect and digital games in the educational process. The findings of this study underscored their importance as an educational approach, considering them as contemporary interactive teaching methods that require wider application due to their positive impact on skill development among learners. Additionally, the scarcity of studies addressing the

utilization of electronic practical presentations with kindergarten children was noted by the researchers.

Based on this, the current research problem is identified in the following main question:

- What is the effectiveness of electronic practical presentations in developing semantic memory skills in kindergarten children?

From this question, several sub-questions arise, including:

؟ - What semantic memory skills should be developed in kindergarten children1

- What are the suitable electronic presentations for developing semantic memory skills in kindergarten children?

- What are the components of the pictorial semantic memory skills assessment for kindergarten children?

- What are the components of the electronic presentation-based program in developing semantic memory skills in kindergarten children?

- What is the effectiveness of a program based on electronic presentations in developing semantic memory skills in kindergarten children?

Research Objectives:

- - Identify semantic memory skills and work on developing them in kindergarten children.

- - Determine suitable electronic presentations and utilize them to develop semantic memory skills.

- - Construct a pictorial semantic memory skills assessment to measure the level of these skills in kindergarten children.

- Develop a program based on electronic practical presentations to enhance semantic memory skills in kindergarten children.

Significance of the Research:

Providing information and activities related to the strategy of electronic practical presentations that benefit curriculum developers in early childhood education to develop curricula based on this strategy.

- This research aligns with modern educational trends in the strategies used in teaching children.

- The research topic complements the efforts of researchers and responds to the requirements of the era, which call for diversifying effective teaching strategies that place the learner at the center of the educational process.

- Providing a suitable pictorial semantic memory skills assessment for kindergarten children.

- Providing a program based on electronic practical presentations to enhance semantic memory skills in kindergarten children.

Research Terminology:

- Electronic Practical Presentations: This is a modern teaching strategy that keeps pace with technological advancements. It involves using multimedia (text, audio, images, video) and includes various electronic activities such as stories, songs, colorful images, silent images Question and Answer sessions, electronic plays, and YouTube clips. These activities are designed and presented through computer software to enhance semantic memory skills in kindergarten children. This method is called "modeling" because learners observe models of what they are supposed to learn and try to mimic and apply them.

- Semantic Memory and its Skills: A type of long-term memory that stores knowledge, facts, concepts, and general information about the surrounding world in the form of a linguistic symbolic system. It allows individuals to understand and interact with their environment. Semantic memory encompasses accumulated general knowledge throughout our lives. Its skills include semantic recognition (identifying body parts), semantic naming (naming images after recognizing objects through pictures), recognizing semantic sounds, semantic classification, semantic judgment (judging things based on semantic links), semantic vocabulary (lexical fluency), semantic comprehension and functional linking of sentences, and directed semantic drawing.

- Kindergarten Child: A child at the initial level, typically aged between 4-5 years old, who is enrolled in an educational institution specifically designed for pre-school children. This institution can be independent or attached to primary schools, aiming to satisfy the child's needs and develop their knowledge and experiences in all areas, including mathematics, to enhance their semantic memory skills.

2. Research Methodology:

The research utilized an experimental approach with a pre-test/post-test control group design to measure the effectiveness of the electronic practical presentations strategy in developing semantic memory skills among kindergarten children and its impact on their acquisition of these concepts. Pre-test, post-test, and follow-up measurements were applied to both the experimental and control groups.

Research Hypotheses:

- There are statistically significant differences between the mean scores of children in the experimental group and the control group on the pictorial semantic memory skills scale in the post-test measurement in favor of the experimental group.

- There are statistically significant differences between the mean scores of children in the experimental group on the pictorial semantic memory skills scale in both the pre-test and post-test measurements in favor of the post-test measurement.

- There are no statistically significant differences between the mean scores of children in the experimental group on the pictorial semantic memory skills scale in the post-test and follow-up measurements.

- The program based on electronic practical presentations is effective in developing semantic memory skills among kindergarten children.

Research Limitations:

- Objective Limitation: The research focuses on the effectiveness of electronic practical presentations on semantic memory skills, specifically targeting skills such as semantic recognition (recognizing body parts), semantic labeling (labeling images), semantic sound recognition, semantic classification, semantic judgment, semantic vocabulary, semantic recall, verbal fluency, semantic comprehension, functional sentence linking, and directed semantic drawing.

- Spatial Limitation: The research was conducted in the fifteenth kindergarten in Khamis Mushait, Aseer Educational Region, Saudi Arabia.

- Temporal Limitation: The research procedures were implemented during the second semester of the academic year 2023/2024.

- Human Limitation: The participants were first-level kindergarten children aged between 4 and 5 years old.

Research Tools:

Data Collection Tools:

- Survey questionnaire to identify the semantic memory skills that need to be developed in kindergarten children.

- Survey questionnaire to determine the suitable electronic presentations for enhancing semantic memory skills.

Measurement Tools:

The Colored Progressive Matrices Test by John Raven (prepared by Ibrahim Mustafa Hamad, 2008).

Semantic Memory Skills Scale for Kindergarten Children-

: Experimental Processing Tools

- Program based on electronic practical presentations strategies to develop semantic memory skills.

Methodological procedures for research:

Experimental design of the research: The methodological procedures followed in the research procedures are clear, which include the methodology, the tools, and the field study,

Methodology:

The experimental method was utilized to suit the nature of the research, involving the design of two groups (experimental and control) and the use of multiple measurements (pre-test, post-test,

and follow-up) to assess the impact of the independent variable (electronic presentations) on the dependent variable (semantic memory skills).

- Field Study: The research was conducted in the fifteenth kindergarten in the Aseer Education region.

- Statistical Methods: Statistical methods were applied to process the obtained data, including quantitative analysis of research hypotheses and the use of appropriate statistical tests to analyze differences between groups and estimate the statistical effectiveness of the electronic presentation-based program in enhancing semantic memory skills.

Secondly: Research Population and Sample:

The research population comprises all government kindergartens in the Aseer Education region. The fifteenth kindergarten in Khamis Mushait was deliberately selected. The sample size for the survey was 30 boys and girls from the kindergarten who were not part of the original research sample. They underwent the tests used in this study to ensure the reliability and validity of the tools (psychometric properties). The primary research sample consisted of 60 boys and girls randomly selected and registered for the second level of kindergarten. They were divided into 30 children for the experimental group and 30 children for the control group.

Sample Adjustment:

Equivalence of the Research Sample:

In terms of chronological age and intelligence level :The researchers established the equivalence between the average scores of children in the experimental and control groups regarding chronological age. The ages of each child in both groups were recorded and statistically processed. Equivalence in terms of intelligence was also established by administering John Raven's Colored Progressive Matrices Test to the children in both the experimental and control groups. The answer sheets were corrected using standard scoring rules, and the results are shown in the following table:

Table (1) shows the equivalence between the children of the experimental and control groups in terms of chronological age and intelligence:

Group ____---------- Variables	Control N(30)		Experimental N(30		"T "Value	Significance level
	P1	M1	P2	M2		
Chronological age	64,29	1,09	64,16	1,02	0,88	Non-function
IQ level	100,33	2,11	100,7	2,00	1,10	Non-function

It is evident from Table (1) that there are no statistically significant differences between the average scores of children in the experimental and control groups in terms of chronological age and intelligence level, indicating their equivalence.

In terms of semantic memory skills: The researcher determined the significance of the differences between the average scores of children in the experimental and control groups in the pre-measurement to ensure the equivalence of the sample in the dimensions of the illustrated

Semantic Memory Skills Scale before starting the application of electronic presentations. The results were recorded and then statistically processed using the "t-test" for two independent groups. The results are shown in the following table:

Table (2) shows the equivalence between the children of the experimental and control groups in terms of the dimensions of the Semantic Memory Skills Scale:

Variables	Control N(30)		Experimental N(30		"T "Value	Significance level
	P1	M1	P2	M2		
Illustrated Semantic Memory Skills Scale	32,24	5,04	32,11	4,99	0,105	Non-function

It is evident from Table (2) that the "t" value is not significant, indicating that there are no statistically significant differences between the mean scores of the children in the two groups concerning the dimensions of the pictorial semantic memory skills scale in the pre-test measurement. This suggests that the two groups were equivalent before conducting the experiment.

Third: Research Tools and Materials:

The current research uses the following tools:

- A survey form to determine the semantic memory skills that need to be developed in kindergarten children / prepared by the researcher (Appendix 1).

The researchers prepared a preliminary list of semantic memory skills that were identified after reviewing previous, including (Dahha and Sharadaqah, 2022), (Al-Ayeb, 2022), (Shaheen, 2019), and (Yassin, 2016), and it was presented to the arbitrators, and based on their opinions, the researcher anticipated the skills that won an approval rate of 80% or more for biological concepts, and the skills that Obtained approval amounting to (80%) or more are (the skill of semantic recognition (recognition of body parts) - the skill of semantic naming (naming images) (after identifying things through pictures) - the skill of recognizing semantic sounds - the skill of semantic classification - the skill of judging things by semantic linking - the skill of semantic lexicon - the skill of semantic recall. (Verbal fluidity - the skill of semantic understanding and functional linking of sentences - the skill of directed semantic drawing), and they explained in their opinions that it is suitable for the child and suitable for building this scale, and thus the first question was answered, which reads, "What semantic memory skills must be developed in a kindergarten child?"

- Raven's Colored Progressive Matrices Test (Prepared by Ibrahim Mustafa Hamad, 2008) Appendix(2).

This test is applied to children aged(5.5 to 11.5) years, both typically developing and intellectually delayed, as well as to elderly individuals aged(65 to 85) years. The test requires a sufficient and appropriate amount of time for administration, as deemed necessary by the examiner. It is administered individually to children and the elderly and is considered valid for use in various environments and cultures, as it is not influenced by cultural factors. This test has

good validity, with correlation coefficients ranging from (0.43 to 0.84) in the verbal section and from(0.5 to 0.74) in the performance section. These high correlation coefficients indicate good validity. The researcher calculated the validity coefficient for the scale, which was 0.77) indicating the scale's validity.)

Furthermore, this test has good reliability, with reliability coefficients ranging from (0.62 to 0.91)The researcher calculated the reliability coefficient for the scale using the test-retest method, and the reliability coefficient was 0.84, indicating high test reliability. For scoring, each correct answer is given a score of (1), and unanswered questions are given a score of(0).

- Pictorial Semantic Memory Skills Scale for Kindergarten Children / Prepared by the Researcher (Appendix 3):

- The scale was designed through: Reviewing previous research and studies related to the research topic "semantic memory skills", which had a role in formulating the verbal phrases of the scale to suit the characteristics and the child's linguistic dictionary, and identifying some phrases that express the content of the scale and in dividing the dimensions of the scale and writing vocabulary for each dimension, taking into account their consistency with each other and with their own dimension, including a study (Dahha and Sharadqa, 2022), a study (Al-Ayeb, 2022), a study (Al-Maghribi et al., 2022), and a study (Shaheen, 2019).

- The current scale aims to measure the semantic memory skills of the kindergarten child to become able to: (Good recognition of his body members - evoking semantic concepts and definitions - Automatic evocation of words and concepts from semantic memory - Retrieval of concepts and definitions from the semantic memory that is thrown on his hearing - Identify the child's lexical balance - Phonetic comprehension and semantic phonetic classification - Semantic classification of living beings and non-living objects surrounding him in his environment - Organization of semantic concepts in his semantic memory - Disclosure of the concept of linking Semantic - Determine the knowledge of the child's balance of knowledge stored in his semantic memory - Determine the characteristics of things that he deals with and watch constantly in his surrounding environment - Measure the ability of the kindergarten child to link between the wholesale understanding and the specific characteristics of the thing - Semantic link between the mental image of the concepts acquired and what is on the paper for the things surrounding him in his environment and the scale consists of 90 phrases distributed on (9) axes are clear as follows:

The current scale consists of nine skills:

Semantic recognition skill (recognition of body parts) includes phrases(1-10) -

-Semantic naming skill (naming images) (after recognizing objects by images) from (11-24.)

(25-34). - The skill of recognizing semantic sounds, including phrases from

-The skill of semantic classification, including phrases from (35-44)

- The skill of judging things by semantic linkage, including phrases from (45-54.)

The skill of the semantic lexicon, which includes phrases from (55-60). -

Semantic recall skill. (Verbal fluidity) includes phrases from (61-65) -

The skill of semantic comprehension and functional linking of sentences, including phrases from (66-83).

The skill of directed semantic drawing and includes phrases from(84-90). –

The tools, images, and words suitable for the environment in which kindergarten children live were diversified. Their content aligns with the developmental characteristics of children and considers the child's ability in semantic recall of words, concepts, and images. The scale is administered in an average time of 45 minutes, which is the average time taken by the sample to respond to the scale items. During scoring, the child receives two points (2) for each correct answer, one point (1) if they hesitate but eventually give a correct answer, and zero points (0) for each incorrect or unanswered question.

The reliability coefficients for the raters ranged between (80% and 100%) indicating the reliability of the items, calculated using the Lawshe equation. All items were retained as they achieved over 80% agreement among experts, indicating the scale's reliability. The internal consistency method was also used, finding the correlation coefficient between each item score and the total score of the scale. The results are shown in the following table:

Table (3) Correlation coefficient between each dimension score and the total score of the Pictorial Metaphorical Memory Skills Scale for Kindergarten Child."

Coefficient of internal consistency	Dimension
0,87	Semantic recognition skill (recognition of body parts).
0,90	Semantic naming skill (naming images) after recognizing objects by pictures
0,91	The skill of recognizing semantic sounds.
0,89	. Semantic classification skill
0,92	The skill of judging things by semantic linkage
0,88	Semantic lexical skill.
0,92	Semantic recall skill. (Verbal fluidity)
0,89	The skill of semantic comprehension and functional linking of sentences
0,90	The skill of directed semantic drawing

The preceding table reveals that the correlation coefficients for the dimensions of the scale ranged between(0.87 and 0.92) These correlation coefficients indicate a functional relationship, suggesting the consistency of the scale.

The researchers also calculated the stability coefficients using Cronbach's alpha, which amounted to 0.92%, indicating statistically significant stability. This suggests that the scale exhibits an acceptable level of consistency. Furthermore, they computed the correlation coefficient between them using Spearman's equation in the test-retest method. The correlation coefficient between the first and second applications of the test was found to be 0.92, indicating a high correlation, which signifies the scale's stability. And thus, the answer to the second question, which asks "What are the components of the Pictorial Metaphorical Memory Skills Scale for Kindergarten Child?

"- The Electronic Presentations for Developing Metaphorical Memory Skills in Kindergarten Children (Appendix 4)

The researchers reviewed several programs and studies in the field of early childhood education, including the study by Ahmed (2019), the study by Thahir, Mawarni, and Papiupi (2019), and the study by Abdulrahim (2022). The components of the electronic practical presentations used to develop metaphorical memory skills varied, including electronic stories, animated images, electronic plays, electronic songs, educational YouTube videos, and electronic presentations. These presentations were presented to reviewers, and the researchers anticipated those presentations that the reviewers agreed were suitable by 85% or more. This high percentage indicates the credibility and suitability of the presentations for application with kindergarten children, achieving the program's goal of developing metaphorical memory skills. The main goal branches into the following objectives":

Developing the kindergarten child's ability to recognize semantic (body parts).)-

- Developing the child's ability to semantically label (naming pictures) (after recognizing objects through images.)

- Developing the kindergarten child's ability to recognize semantic sounds.

- Developing the kindergarten child's ability to classify semantically.

- Developing the kindergarten child's ability to sequence and generalize semantically.

- Developing the kindergarten child's ability in semantic vocabulary.

) Developing the kindergarten child's ability in semantic recall (verbal fluency)-

- Semantic comprehension skill and functional linking of sentences.

. Developing the kindergarten child's ability in guided semantic drawing-

The components of the electronic presentations, in light of what has been done, become apparent as follows:

- - The title of the electronic practical presentation provided to signify its purpose, which was developed for the following goal: "Electronic Practical Presentations for Developing Semantic Memory Skills for Kindergarten Children."

- Screens illustrating the index of prepared electronic presentations.

Introductory screens to welcome the children.

- - Screens featuring images of some introductory questions about the content of the presentations presented to the child, such as a preliminary assessment.

- The content of the electronic presentations, consisting of items of the scale, which are presentations for the following specific semantic memory skills: semantic recognition skill (recognizing body parts), semantic labeling skill (naming pictures) (after recognizing objects through images), semantic sound recognition skill, semantic classification skill, judgment skill through semantic linking, semantic vocabulary skill, semantic recall skill (verbal fluency), semantic comprehension skill, functional linking of sentences skill, and guided semantic drawing skill for kindergarten children. These skills are presented to children through electronic stories,

electronic games, electronic songs, YouTube clips, electronic presentations, electronic stories, and electronic theater.

- - A screen displaying some images for concluding questions for each part of the content as a post-assessment.

- - The closing screen: bidding farewell to the children accompanied by auditory and visual effects.

Thus, the fourth question of the research has been answered.

The educational philosophy of electronic practical presentations stems from the necessity and inevitability of developing semantic memory skills in kindergarten children, given their significant importance in various aspects of life. These presentations equip children with the essential knowledge and skills that aid in their growth and dealing with daily life situations (Cole, et al., 2001, p. 76).

Multiple learning theories are based on simulating the social situations experienced by learners and interacting with them. This research adopts the communicative theory of education and learning, presented by "Simmons" in 2005, which seeks to clarify how learning occurs in complex electronic environments and how it is enhanced by modern technology (Abdelmagid, 2012). Additionally, the research draws upon the constructivist theory in designing electronic presentations. Jean Piaget emphasized that thinking comprises the processes of organization and adaptation, through which individuals acquire cognitive abilities. Organizational processes focus on the constructive aspect of thinking, while adaptation concerns the child's endeavor to achieve a balance between their experience and the events that influence them in their environment (Fares et al., 2017, pp. 124–125).

- The current research relied on several educational strategies to enhance the effectiveness of electronic practical presentations, including: dialogue and discussion strategy, brainstorming strategy, problem-solving strategy, self-learning strategy, e-learning strategy, brainstorming, educational stations, direct questions, modeling, exploration, interactive reading, educational puzzles, storytelling, puppet theater, educational games, singing, learning through play, storytelling, imitation and simulation, role-playing, encouragement and reinforcement, guessing, material and moral reinforcement, and feedback.

- Moreover, the research utilized the following tools: computers, laptops, smart screens, flash drives, CDs, static and animated images and graphics, colored and black-and-white picture cards, paper and electronic stories, child-environment models, colors, mazes, dolls, educational toys, puzzles, various corner tools, educational boards, audio recordings, and puppet theater.

- The electronic practical presentations were designed according to stages that are clarified as follows: analysis, design, development, implementation, and evaluation. Based on this design, the researcher was able to outline a conception of the stages to be followed when designing electronic practical presentations.

-The program is implemented in an enriching training environment rich in ideas and sensory stimuli, tailored to suit different learning styles (auditory, visual, and tactile) of kindergarten

children (participants in the experimental sample). This is achieved through collaboration with the kindergarten management to provide a suitable venue for the program sessions.

- The program is evaluated using preliminary, interim, and final assessment methods throughout the program implementation period, according to the program's nature. Effective evaluation methods include questions at the end of each session to measure the targeted learning outcomes. It's noteworthy that electronic practical presentations will be used as a teaching strategy, where they provide complete information and skills, and also as an assessment tool.

- The program is executed with a frequency of two sessions per week, in addition to the introductory session, making the total number of sessions 10. Each session includes a break period, and the session duration is 90 minutes. The program is implemented over a period of 5 weeks, within the regular kindergarten schedule, with one activity per day. The researcher designated the first session as an introductory session to build rapport and establish positive relationships with the participating children, introducing them to the program and its pre- and post-objectives.

-The research utilized the Statistical Package for the Social Sciences (SPSS) for statistical analysis. The methods employed in this research include:

- Inter-Rater Agreement Formula: Used to find agreement ratios between the reviewers.

- Cronbach's Alpha Method and Reapplication: Utilized to calculate the reliability of the scale.

Spearman's Equation: Employed to calculate correlation coefficients. -

- Pearson Correlation Coefficient: Utilized to estimate the internal consistency of the scale.

- Independent Samples t-test: Applied to examine the significance of differences between the mean scores of research sample groups in scale dimensions and subsequently verify its significance using t-values.

- Effect Size Measure (η^2): Employed to demonstrate the strength of the effect of the independent variable on the dependent variable.

- Modified Blake's Gain Ratio: Used to indicate the effectiveness of the independent variable on the dependent variables.

3. Research Results and Discussion:

The research findings were discussed in light of the predetermined hypotheses and the outcomes of the field study, aiming to identify the effectiveness of a program based on electronic presentations in developing semantic memory skills among kindergarten children.

-To verify the validity of the first hypothesis, which states that "there are statistically significant differences between the mean scores of the experimental group and the control group on the post-test of the pictorial semantic memory skills scale, in favor of the experimental group," the t-value was calculated for two independent groups to determine the significance of the difference between the mean scores of the experimental and control groups in the post-test of the pictorial

semantic memory skills scale for kindergarten children. Additionally, the values of (η^2) and (d) were calculated accordingly. The results are summarized in the following table:

Table (4) shows the arithmetic averages, standard deviations and the value of "T" for the differences between the average scores of the children of the experimental and control groups in the dimensional measurement of the scale of semantic memory skills illustrated

Dimension	group	scaling	Arithmetic mean	Standard deviation	Number	Degrees of freedom	Value (v)	Significance level	Impact size (η^2)Value		Impact size Value (d)	Amount of impact
The overall score of the semantic memory skills scale	Experimental	Post	82,54	9,001	30	58	32,14	function at 0.05	0,905		8,06	big
	Control		33,21	4,012	30							

-The previous table (Table 4) indicates that the experimental group achieved a higher improvement rate than the control group in the post-test of the pictorial semantic memory skills scale. This is attributed to the effectiveness of the electronic presentations used, as evidenced by the value of d for the overall scale (8.06), indicating a large effect size of the independent variable. This means that the first hypothesis of the research is accepted .

The significant improvement and superiority in the results can be attributed to the engaging and effective presentations provided during the sessions, which include understanding, recall, application, and diversity between electronics, various models, and real-life models. This provided each child with the opportunity to choose, experiment, and practice various semantic memory skills in an integrated manner in multiple attempts filled with joy, fun, happiness, and delight. In this context, Angeli & Valanides (2019) emphasized that children respond to presentations and activities that capture their attention, taking into account individual differences among children and catering to their passion and interests. This attracts their attention and occupies their time, leading to positive interaction with all the concepts presented to them in modern ways closer to the child's abilities and suitability, relying on attractive and colorful images, animations, auditory and visual cues, electronic links, tangible and sensory means, representation, and embodiment of the work, and feedback. This helps to keep the information in the memory for a long time as it is from the child's environment, linking its content to the child's senses and suitability for the characteristics of the age stage (Hajji et al., 2023).

- The increase in the child's concentration while watching the activities presented to him, utilizing them to engage all his senses, contrasts with the conventional method, which captures a lower percentage of the child's attention.

-To verify the validity of the second hypothesis, which states that "there are statistically significant differences between the mean scores of children in the experimental group on the Visual Semantic Memory Skills Scale in the pre-test and post-test in favor of the post-test," the significance of the differences between the mean scores of the children on the Visual Semantic Memory Skills Scale was calculated. The T-test was used for this purpose. Additionally, the values of ($\eta 2$) and (d) were computed accordingly. The following table illustrates this:

Table (5) Shows the averages, standard deviations and value of "T" for the differences between the pre- and post-measurements of the children of the experimental group on the scale of semantic memory skills illustrated

Dimension	group	scaling	Arithmetic mean	Standard deviation	Number	Degrees of freedom	Value (v)	Significance level	Impact size			Amount of impact
									(η^2)Value		Value (d)	
The overall score of the semantic memory skills scale	Experimental	Post	82,54	9,001	29	29	53,02	function at 0.05	0,934	10,22	big	
		pre	38,20	6,303								

-The table above (5) indicates that the "t" value is significant at 0.05, indicating statistically significant differences between the means of the experimental group's children in the pre-test and post-test dimensions on the Visual Semantic Memory Skills Scale in favor of the post-test. The "t" value for the entire scale was (53.02), which signifies significance at the 0.05 level with degrees of freedom (29). Moreover, the eta squared (η2) value for the entire scale was (0.934), and the effect size value (d) for the entire scale was (10.22), indicating a large effect size for the independent variable. This suggests a clear improvement in the dimensions of visual semantic memory skills for the children in the experimental group in the post-test application, indicating the acceptance of the second hypothesis of the research.

- The improvement in the post-test measurement can be attributed to the interactive nature of the educational presentations and activities, which provided the children in the experimental group with ample opportunities for integrated interaction between observation, application, and representation. This positively impacted the development of their semantic memory skills. This finding is consistent with the results of studies by(A brihem ,2018) and(Ahangari and Al,2011) which found statistically significant differences between pre-test and post-test scores on the Visual Semantic Memory Skills Scale in favor of the post-test. Additionally, it is attributed to the effective participation in activities that enhance semantic memory skills, contributing positively to their learning process. Furthermore, what they learned remains embedded in their minds for long periods, retrievable when needed in real-life situations they encounter. This is also attributed to the researchers' diligent follow-up and their commitment to developing semantic memory skills.

-The results of the current research align with previous studies such as Dahha and Sharadqah (2022), Al-Ayib (2022), and Abdel-Aleem (2022), which found the effectiveness of programs based on diverse and contemporary teaching strategies in developing scientific knowledge and other skills among kindergarten children.

-To verify the validity of the third hypothesis, which states that there are no statistically significant differences between the means of the experimental group's children in the post-test and follow-up measurements on the Visual Semantic Memory Skills Scale for kindergarten children, the t-test was used for two correlated means to calculate the standard deviation and the average scores of the experimental group's children in the post-test and follow-up measurements

on the Visual Semantic Memory Skills Scale. Additionally, the eta squared (η2) and effect size (d) values were calculated. The results are illustrated in the following table:

Table (6) shows the averages and standard deviations and the value of "T" for the differences between the dimensional and tracking measurements of the children of the experimental group on the scale of semantic memory skills illustrated

Dimension	group	scaling	Arithmetic mean	Standard deviation	Number	Degrees of freedom	Value (v)	Significance level	Impact size		Amount of impact
									(η²)Value	Value (d)	
The overall score of the semantic memory skills scale	Experimental	Post	82,54	9,001							
		Follow	82,00	9,012	29	29	1,201	Non-function at 0.05	0,062	0,241	small

- The previous table (6) shows the similarity in the mean scores between the post-test and the follow-up test for the experimental group of children on the scale. This indicates that there are no statistically significant differences between the mean scores of the experimental group children in the post-test and the follow-up test on the pictorial scale of semantic memory skills. The value of (d) for the overall scale was (0.241), which means that the third hypothesis of the research is accepted.

- The results here indicate that there was no growth in the dimensions of the pictorial scale of semantic memory skills among the experimental group children. This can be explained by the fact that the children received realistic electronic practical presentations from their surrounding environment included in the activities presented to them, which led to the development of semantic memory skills and prevented the children from forgetting what they had learned (Simsar, A., 2021). The results are consistent with the findings of the study by(Abdelalim ,2022) which found no statistically significant differences between the mean scores of children in the post-test and the follow-up test after being exposed to the training program - In light of the above, it is evident that the current study achieved its objectives and demonstrated the effectiveness of electronic practical presentations in developing the semantic memory skills specified in this research.

Verification of the Fourth Hypothesis:

which states:

The effectiveness of a program based on the strategy of electronic practical presentations in developing semantic memory skills among kindergarten children." To verify the validity of this hypothesis, the researchers used the "Black" formula to calculate the adjusted gain ratio. This is illustrated in the following table:-

Table (7) The results of the "Black" equation for the effectiveness of electronic practical presentations in developing semantic memory skills between the pre- and post-measurements on the scale of semantic memory skills

scale	Variables	scaling	Arithmetic mean	great end	Blac ratio	Significance
Semantic memory skills	Total Grade	post	82,54	180	1,30	Effective
		pre	33,24			

It is evident from Table (7) that the adjusted gain ratio for the effectiveness of electronic practical presentations in developing semantic memory skills is effective, as the value of each is greater than 1.2. This confirms the effectiveness of the program, meaning that the fourth hypothesis of the research is accepted.

-The results confirm the validity of the fourth hypothesis, which states: "There is effectiveness in electronic practical presentations for developing semantic memory skills among kindergarten children." The success of these electronic practical presentations relies on clarification, explanation, and interpretation, leading to enhanced development of semantic memory skills and improved acquisition and retention of information in memory. Moreover, providing opportunities for children to think, recall previous knowledge, and integrate it with new information through semantic labeling, categorization, and recognition during encounters reinforces the stability of the information in memory.

Furthermore, linking what they learn through images, models, and real-life objects engages their senses and aligns with the child's experiences and environment. This was evident in a study conducted by(Al-Ajmi et al,2022).

-The findings of this research align with numerous studies that have demonstrated the effectiveness of programs utilizing electronic presentations with kindergarten children, such as the study conducted by(Kim & Lim ,2019)

-Electronic presentations have been shown to aid in the development of semantic memory skills and in summarizing all the information received by children.

4. Research recommendations:

In light of the research results, the following can be recommended:

- Generalizing the Semantic Memory Skills Scale used in this research.

- Intensifying attention to semantic memory in children and methods for developing these skills due to their impact on children's learning.

- The importance of stakeholders, program planners, and curriculum developers focusing on employing electronic presentations in children's education as one of the modern teaching strategies.

- Conducting continuous training courses for early childhood educators on utilizing teaching strategies with children.

- Developing a comprehensive plan with various resources and equipment aimed at developing concepts and skills for children.

- Allocating training courses for teachers on strategies that contribute to the development of children's skills.

Research proposals:

- Developing educational plans or training programs aimed at enhancing semantic memory in kindergarten children.

- Conducting a study on the effectiveness of electronic presentations in developing motor skills in kindergarten children.

- Fostering moral values and social awareness in kindergarten children through the use of electronic presentations.

- Conducting experimental research using electronic presentations with specific groups of children (gifted, learning disabled, hearing impaired) during childhood stages.

- Utilizing electronic presentation strategies in promoting peace among kindergarten children.

- Conducting experimental research to investigate the impact of electronic practical presentations on the development of other related variables.

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