

THE EFFECT OF HAYES TEACHING ON ACHIEVEMENT AND INCANDESCENT MEMORY AMONG FIFTH GRADE PRIMARY STUDENTS IN READING

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ABSTRACT

This study is an examination of the effects of Hayes-style instruction on the reading achievement and incandescent memory of fifth-grade students. Two groups of schoolgirls, Twenty-five in each group, were included in the research sample. Ram Allah Primary School for Girls was randomly chosen by the researcher as one of the primary schools in Babylon Governorate-Directorate of Education. The researcher used the experimental method, which includes the Hayes method, the tested (academic achievement) and incandescent memory, after the researcher chose the method of the experiment to control the research variables, and before the start of the application of the experiment, the researcher controlled between the two research groups in order to obtain accurate results and which had the following variables as the calibrated age in months, the students' previous achievement, Daniel Iq test, and incandescent memory scale, and after the confrontation between the two research groups, the researcher prepared the requirements for implementing the plans, objectives, and tests, and the level of boolean was set to be applied to the two research groups. After conducting the experiment, the researcher collected data from these two groups regarding the search facilities implemented. When analyzing this data statistically using the t-test for two independent samples, it was found that students in the experimental group outperformed those in the control group according to Hayes's method in terms of academic achievement and incandescent memory scale.

Keywords: Hayes method, academic achievement, incandescent memory, fifth grade students, reading material.

INTRODUCTION

Reading is one abstract school materials need a great effort to be given by the teacher to reach the students and vice versa, Consequently, they might struggle to comprehend it, as it requires concentration, interest, and careful observation. Numerous recent Iraqi studies and research have pointed out a decline in students' reading achievement levels during the primary stage. Among these are the studies by Ahmed and Sahib (2019) and Karam Allah and Kazem (2020), which found that the conventional teaching method employed when teaching reading—where the teacher is positioned opposite the students, which was characterized by dictation, command and control, the recipient, passivity and submission to the student, he was passive did not contribute to real learning.

The official approvals of the General Directorate of Education of Babylon Governorate were obtained and survey questionnaire was delivered to (16) female children teachers in the reading subject in the primary schools which are under the auspices of the Directorate of Education of Babylon Governorates and the findings of the questionnaire are as follows:

1. 95% utilize traditional teaching methods for the subject, while 5% employ modern techniques, such as the five-year learning cycle method.
2. (2) All the teachers of the teachers of the reading subject (100%) also agreed that they do not have information about the modern methods as well as (space to new methods like Hayes method) used for teaching the reading subject but this should be one of the possible solutions may work on solving some (educational) problems of the reading subject.
3. 80% of them confirmed that there is a decrease in the achievement of female students due to (the lack of modern labs, the large number of the female students in one class, and the richness of the subject vocabulary, and the

inadequacy of the classroom environment fit for teaching, which causes withdrawal to the conduct of the lesson as planned), while (20%) of them confirmed that there is no decrease in the achievement of female students.

4. Von ihnen haben 95 % bestätigt, dass die Schüler aufgrund ihrer Lehrmethode keine ausgeprägte Gedächtnisleistung aufweisen, während 5 % bestätigen, dass einige Schüler eine ausgeprägte Gedächtnisleistung haben, da ihre Lehrmethode solche Variablen fördert.

The largest part of the teacher sample concurs that fifth graders' reading achievement is declining and that teachers' methods do not foster incandescent memory. Consequently, the researcher opted to employ Haye's method in teaching reading, aiming to boost students' academic performance in this area and enhance their incandescent memory. This decision was based on data gathered from the exploratory questionnaire, researcher found that the majority of teachers confirmed that there is decrease in the level of achievement of fifth grade students in reading subject and methods developed by the teachers does not develop incandescent memory so the Researcher decided to use the Hayes method in this field and this might help the students in increasing their academic achievement in reading and incandescent memory.

Consequently, the research issue is to address the question:

(How does teaching wherein the method according to Hayes is used influence the achievement and the incandescent memory of fifth grade students in reading?)

SECOND: THE IMPORTANCE OF RESEARCH:

In the light of the scientific development the world is witnessing, it is necessary to prepare students who are capable of keeping pace with the rapid scientific progress and staying in tune with it., to prepare students for keeping up with the development we must pay attention education; education is an organized and purposeful process to achieve clear and tangible positive changes in the student's behavior to help them in developing their personalities and mental, social, emotional, linguistic, and kinetic development (Spencer, 2018: 13.; and also so help them to communicate with knowledge and his secrets to them, by teaching students among themselves and their education is reflected on the development and progress of the society as w372ell (Al-Nashif, 2018: 56) and this makes it impossible to be an eternal process and has been an increase process affected by consecutive changes in life affairs such as to be an always development and develop in its//goals and material, without lose sight of ongoing developments imposed by the terms of logic of the times //so must be developed out of his concept to be valid on practical, in wider sense//It's own provisions, and must evolve and be continuous in thinking to continuously update it so that it would be compatible with the recent scientific knowledge in continuous emergence (Al-Dulaimi, 2020: 49).

Therefore, today's student necessitates teaching methods that align more closely with his life, incentives, and abilities in order to bridge the gap between classroom learning and the experiences provided by his environment. Such methods should facilitate the transfer of scientific knowledge, experiences, and skills beyond the confines of school and classroom (Al-Kaabi, 2018, P: 19). This text is of great importance because it translates the educational content into concepts and trends which the school seeks, determines the type of learning and the extent of their relative ease or difficulty ... It also has an explicit impact on the attitudes of students and their attitudes towards the topic and their teachers; hence the methods have become integral part of the school curriculum and is no longer an activity that takes place beside or alongside (Abdul Majeed, 34, 2019).

The researcher believes that the emergence of modern and many of the methods of teaching, change of the educational process from reliance the teacher alone the attention to the student and his role in the educational process, so that the student has become a center for organized events seeking to achieve the educational goals desired, and as an axis of center in the education process It contributes to students to self-learning and active participation in the lesson.

Effective teaching is a method of teaching that arouses the learner to learn (so he is not only a villager of dates of information, but a participant or an insurgent in a search of information through different possible ways... history of scientific) and it is a method of teaching depends on and with the self-activity and positive Participation the learner, by the researcher through a series of scientific activities and processes such as observation is a مدثر and a measurement and a prosthetic information in the data readings and the conclusion, which help him reach the conclusion, himself and under the supervision of the teacher and guided by the evaluation and self-evaluation.) (Al-Tanawi, 2016: 54).

Effective teaching methods: they form the visible part of the teacher's practice of the effective teaching, and there are many effective methods in varying duration of methods employed and in steps between here below than 2) very short in their application and methods requiring more than one share to be applied, and it is necessary for the teacher to select the method that is most appropriate for his share, and in the process of applying these effective methods, the teacher has to pay attention to (it is necessary teacher must pay attention of the methods regarding their goals, steps, and the best timing to perform them, and choose the appropriate method for the content of the lesson and the available time, and to diversify in the methods performed as it is required by the class situation, with its permanent practice,

and by preparing the appropriate class atmosphere for the application of the effective methods).(Al-Saadi, 2020: 207-208).

One of the modern methods of teaching effective is the method of Hayes (Hayes method), because it depends on the search in a regular setting to solve the problems as the student gains the ability to derive results from the given introductions, this kind of production on which the student is launched that lead him to start with a fact or a piece of information that he knows, and ending at an unknown after they reach the knowledge, where the student evolves known fact to be familiar with the unknown fact that he wants to learn about it, by realizing the reasons and factors from problems that he solves them.

The researcher thinks man that, the Hayes method leads the student to be more observational through new ideas and information, the student can watch the problem that she has in an effective method to get the best solution to the problem, and this will increase the student's ability and will rise the academic achievement (Reda, 2021: 96).

The researcher believes that the emergence of modern and multiple teaching methods has changed the educational process from dependence on the teacher to taking into account the student and his role in the educational process, so that the student became a focus for organized events towards achieving the purposes of the desired education and pivot central in the process of education, and it helps students to self-learning and the active lesson.

Effective Teaching: It is crystalline, activated and not dead way of teaching, which predator the Terms of Learner Himself because He is not a receiver of information, but he is initiator of this information and its seaker by the different possible mean, and is based on self -activity for the positive participation of the Learner hunting with a group of scientific activities and processes are (notice, making of promiisble and hypothesis, measuring, read material and drawing of the conclusion), help him to arrive information that require all information with and directivity and evaluation by teacher (Al-Tanawi, 2016) P. 2.

Effective teaching methods are the public activity in the application of the teacher of effective teaching, and there are many effective teaching methods that vary a duration of one in motion, and the speaker and the highest in the stairs, very short in applying methods, it must select the appropriate style for him, and in order to implement these methods the teacher must pay attention (need the teacher to attention methods in terms of their objectives and stages and better as times to apply them, as well as pick the method appropriate to the content of the lesson and the time available and diversity methods implemented as required by the situation of the class and continued training, and create the atmosphere of the class appropriate for the application of the methods of effective education). (Al-Saadi, 2020: 207-208).

The approach of teaching (Hayes) As one of the tools of the modern of effective methods of teaching can be called (method] Hayes) whose idea is based on a sequential pattern in solving the problems, which is the student's ability to derive the result from introductions (allocated) that is in a type of performance in which the student passes from the known to the unknown on a sustained and good by understanding the reason and the factors for the problems that he solves and recognizes it.

The researcher has an opinion that the Hayes method [5] Based on aesthetics as it makes the student more observant of new ideas and information, because every student has the ability to look at the problem that faces her beneficial way to reach the optimal solution which helps to increase her ability and raise academic achievement [10: 96].

From the foregoing, the importance of research is evident in the following:

1. The researchers' knowledge of few local and Arab research and studies that have tackled "the effect of teaching in the Hayes method on the achievement, incandescent memory among fifth grade students in reading".
2. The significance of education and scientific education in developing the student's mind scientifically and mentally and morally to become mature and open-minded enough to be able to think.
3. Significance of reading in scientific growth in different walks of life, and as an aid for a teacher to exposit the natural phenomena.
4. Considering the necessity of trying out the Haye method as one of the contemporary and useful methods in education, it might help solve some of the problems left unsolved by the traditional methods.
5. The value of the academic accomplishment, because it is suggestive of the determination to which the subjects were understood and mastered, and of the determination to which educational goals were met.
6. The power of insightful memory in effecting correct student behaviors and limited beneficial outcomes.

Third: The aim of the research and its hypotheses: This research seeks to determine how teaching in a Hayes manner affects fifth-grade students' performance and retention of information in reading. To achieve this aim, the researcher developed the following two null hypotheses:

1. At the significance level of 0.05, there is no statistically significant difference between the average scores of trial group students studying the reading material using the Hayes method and those of control group students studying the same subject with the conventional method in the academic achievement test designed for this research.

2. At the significance level of 0.05, there is no statistically significant difference between the average scores of trial group students studying the reading material using the Hayes method and those of control group students studying the same subject with the conventional method on the incandescent memory scale created for this research.

Fourth: Research Limits: This research is characterized by:

1. Spatial limits: primary schools under the Directorate of Education of Babylon.
2. Fristen: das erste Semester des Studienjahres (2023-2024).
3. People limits: pupils of the fifth grade.
4. Kognitive Grenzen: Leseverständnis für die fünfte Klasse der Grundschule.

Fifth: Explanation of terminology:

1. **The effect is known:**
 - A. **(Tamimi et al., 2018) as:** "the set of knowledge and skills acquired and developed during school subjects, usually indicated by test scores or scores assigned by teachers or both" (Tamimi et al., 2018: 32).
 - B. Procedurally, the researcher defines it as the degree of change brought about by the Hayes method in fifth-grade students' reading learning outcomes, measured by a suitable statistical method to determine whether there has been an increase or decrease in average academic achievement scores.
2. **Hayes Method Defined:**
 - I. **(Al-Adl and Abdel Wahab, 2003) defines it as:** "the student's ability to derive results from given premises, a type of performance in which the student progresses from known facts to reach the unknown facts he seeks to discover by understanding and recognizing the causes and factors involved in the problems he solves" (Al-Adl and Abdel Wahab, 2003: 12).
 - II. Procedurally, the researcher defines it as teaching subjects associated with reading units (classification and diversity, the human body and health, the material) through these steps: (identifying the problem, representing the problem, choosing the solution plan, clarifying the solution plan, conclusion, evaluation).
3. **Academic achievement defined by:**
 - A. (Baqli and Hassanein) defines it as: "achievement in a series of educational tests in school or college, and is widely used to describe achievements in methodological subjects" (Bakli and Hassanein, 2017: 128).
 - B. Die Forscherin/der Forscher definiert es verfahrensmäßig als die Menge an Informationen, die Schüler innen der fünften Klasse aus den für den Unterricht verwendeten Materialien gewonnen haben, gemessen anhand ihrer Ergebnisse in einem von ihr/ihm eigens zu diesem Zweck entwickelten Leistungstest..
4. **Incandescent memory was known by:**
 - I. **(Frankel, 2016) as:** a state that man seeks to reach to give his life value and meaning worth living for, and occurs as a result of satisfying his primary impulse of the will to mean (Frankl, 2016: 131).
 - II. **(Halama, 2018) as:** having goals and mission in life and an integrated and logically consistent understanding of self, others, and life in general (Halama, 2018: 339).
 - III. **The researcher defines it procedurally as:** the total degree obtained by the fifth grade student on the paragraphs of incandescent memory prepared by the researcher for this purpose.

LITERATURE REVIEW AND PREVIOUS STUDIES

THE FIRST AXIS: THEORETICAL BACKGROUND:

FIRST: THE CONCEPT OF EFFECTIVE TEACHING:

Teaching in general is a process of interaction, guidance and practice of various activities that depend on the effectiveness of learners and their efforts and the teacher's guidance and guidance, because education has only a modification of behavior through the experiences that are provided to learners, and that his role in the teaching process is limited to playing the role of a catalyst, guide and planner of the stimuli of the learning process, and teaching is a set of activities with multiple aspects and dimensions carried out by the teacher, through which he provides students with information knowledge as well as seeking to modify their behavior through complex processes of movement And the emotions that follow and precede explanation, interpretation, listening, discussion, encouragement and motivation, all of which are done in a healthy and appropriate environment in which both the teacher and the student are comfortable (Reza, 2021: 76).

Effective teaching is the one that takes place in small groups that seek together to achieve common goals for the educational situation, and it occurs in an effective learning environment that differs from the traditional teaching environment that relies on a series of questions and answers followed by feedback, and includes problem-solving situations, social interaction situations, communication skills and learning practice skills, and effective teaching in which the learner is active and not just a viewer and a recipient (Al-Zuhairi, 2016: 26).

As stated by Al-Mayahi (2019: 87), effective teaching refers to how a teacher engages with the act of teaching during the instructional process. It encompasses the approach a teacher takes in applying a given teaching method, which can set them apart from other teachers employing the same method. Thus, it is closely tied to the personal attributes of the teacher, and a teacher's style of instruction is fundamentally connected to their qualities, characteristics, and individual traits.

Second: Hayes Method

Hayes has proposed a sequential method in solving problems that the learner faces, as this method aims to develop the skill of problem solving, thinking and cooperative learning, as it can be implemented at any time the teacher deems appropriate in the class, and this method includes several basic steps that must be followed when teaching science, namely:

1. **Identifying the problem:** by identifying the problem area, or reaching the location of the problem in the given data, and identifying the elements of the desired goal or goal.
2. **Representing or clarifying the problem :** It includes defining terms, identifying the main elements, and expressing the elements of the problem in language and symbols through pictures, shapes and numbers.
3. **Choosing a Solution Plan:** By choosing an appropriate plan to solve the problem from several options, including: (trial and error, developing and selecting hypotheses, dividing the problem into sub-or secondary problems, working to abandon imagined solutions to the starting point, and working to measure the current problem on known previous problems.
4. **Clarifying out the Solution Plan:** By monitoring the solution process, removing obstacles as they arise, and adjusting methods as needed.
5. **Concluding:** It is evident in the purification and formulation of the results and the giving of evidence and reasons.
6. **Verifying & Evaluation :** It includes verifying and evaluating the results in light of the objectives and methods used, and verifying the effectiveness of the methods and the solution plan.
(Jan, 2020: 23)

THIRD: ACADEMIC ACHIEVEMENT

Academic achievement is a term widely utilized in education and specifically in educational psychology, given its crucial involvement in evaluating students' academic performance. It is regarded as a vital measure for determining students' levels and assessing the quantitative and qualitative aspects of educational outcomes (Al-Jadani, 2020: 42). Tracing the historical development of the notion, various specialized scientists have provided different interpretations of academic achievement. A significant issue regarding the definiteness of this concept is its association with school education. Numerous definitions have been proposed in this context, among which is Sbaitan's (2018) definition that characterizes achievement as the degree of acquisition or level of success attained by an individual concerning a specific subject within education or training. , and that the assessments a teacher uses on his students during the academic year in subjects like history, geography, or social studies should be considered as measured by academic achievement or teaching (Sbaitan, 2018: 39). Therefore, achievement encompasses everything the student learns during their education, as indicated by the student's success in passing school tests, navigating school situations, or finding solutions to educational challenges while completing either straightforward or intricate educational tasks (Asprey and Robert, 2017 (4).

FOURTH: INCANDESCENT MEMORY

Memory is the history of experience stored in the brain and there are several type of memories that are supported by different brain systems. Saltatory conduction can be observed in the transmission of neural impulses from sense receptors into interneurons or from interneurons into motor or effector cells by which sense receptors gather information regarding the task and the presence of conditioners in the performance of the task which can change the speed and relatedness or the bias and relatedness in the performance of the task (the synapse in the end organ system), gathers information which is translated into memory system and their the release of the URI (Inexperienced Response Index) something akin to such that they can be called upon in the same sequences which allowed the development of the shape of each statement spoken and listened to while that individual lived and told the story (Synaptic connections can be weak or strong). by the neural circuits of each memory system, and the intensity of memory modulation depends upon emotional arousal, and diminishes with aging. (Gallant, 2012:43).

Important progress in appreciating how memory systems work, and the brain mechanisms that support them, has now started, with the study of a patient referred to by his initials and the letters HM. This was a case of trial surgical treatment for eplilepsy by removal of the medial temporal lobe. The operation did alleviate the severity of epileptic

fits, but it had the unexpected consequence of inflicting severe amnesia upon HM, which rendered him capable of holding onto only a small chunk of data in memory for a short period of time (up to several minutes). Though he could not remember new information, HM could recall childhood and information he had picked up in the years leading up to his surgery.

From this evidence, the researchers postulated that the structures of HM's medial temporal lobe, which encompassed his hippocampus and parahippocampal region, were crucial for transforming short-term memory into long-term memory. Moreover, after successful memory consolidation in other (non-hippocampal) regions of the brain, as HM's memory for distant events testifies, other parts of the brain recall previously stored information and can temporarily retrace or revisit its tracts, hence recall (retrieve) a given memory despite its erasing in the hippocampus happening at the time of the memory's formation (Baumeister 2017: 44).

Second Theme: Previous Studies:

The previous studies is that part of the frame that can be compared to other studies and theories to prove the existence and problem of the study, and it is not limited to the identification of the ideas of others and to the relevant results, no, but when we pass this stage, go to a stage far more, we go beyond the identification to play the role of criticism and analysis of previous knowledge in scorching, and to what extent it is related or associated with the subject of the research to be asked, the previous studies should be comprehensive, detailed and extensive to secure that we are not wasting time later when writing the research, because it must be to see the studies that were made and the efforts that has been made by others before we start writing the research and taking the data, because as knowing he will review at some time, it is not just know, it is better to be done before carrying out the research and took the data (Al-Manizel and Adnan, 2010: 71), and after a review previous studies and literature, she did not find any study that dealt with the Hayes method as a variable, nor QS no study that dealt with the org piano paint as a variable effected .

MATERIAL AND METHODS

First: Trial Design:

One of the key tasks performed by the researcher is selecting a trial design, which aids in pinpointing the factors related to the experiment. This understanding allows the researcher to comprehend what is occurring and what actions are being taken. Considering that this study encompasses three variables—one independent variable indicated by Hayes' method and two dependent variables (collection and incandescent memory)—the researcher has chosen a trial design with partial control, as depicted in Figure 1.

Search tool	Dependent variable	Independent variable	The Collection
Academic Achievement Test + Incandescent Memory Scale	Academic achievement	Hayes method	Trial
	+ Incandescent memory	The usual way	Control

Figure 1: Trial design

Second: Research Community and Sample:

1. **Research group:** The samples of the current study are the morning primary schools for girls only in Babylon Center Directorate of Education, so the researcher visited Babylon Center Directorate of Education to determine how many are the primary schools of girls only that have two classes or more, in the Center as numbered(10) schools.

2. **Sample for research: The research sample can be categorized as:**

➤ **Sample Selection:** The researcher adopted (Ram Allah Primary School for Girls) of Babil Governorate, intentionally to take as a sample of his study for the following reasons:

✚ The school leader and the collective teachers of the school also tried their best to cooperate with the researcher to implement the experiment to serve the business of education and learn the result.

✚ The school is located close to the researcher, making it easier for them to reach the school and prepare the experimental procedure.

➤ **Sample of the study:** The researcher visited the school and the director of Al-Azhor Preparation and Within the sample of the study and the persistence in order to complete the experience after the study with 86 students in two divisions in the class (first) in the school did not find the parachute to the second and allocated by the decision of her

door general directorate of education for compensation, where the first division (60) students and the Division (B) (26) students were already formed and the sample of the study (86) students maximum (34) Male students, (52) students, girls, was the total The study tool for reading, and the two divisions began to study the material reading program by Hayes to the members of Division (B) in parallel with the division in control division (A) with both divisions of each of the instructors and use the same tool, and not were excluded students who I did not succeed students of the two divisions because they have experience in the subject and thus affected the study tools were excluded in all cases were also dropped error of 0.05 on the table Students d (26) Students may only participate in the educational process to the results and the first sample is statistically as shown Table (3)

Table (3): Distribution of the research sample to the trial and control group before and after exclusion

#	The Collection	Number of pupils before exclusion	Number of excluded students	Number of students after exclusion
1	Trial	25		25
2	Control	27	2	25
Total		52	2	50

Third: Equivalence of the two research groups: The researcher sought to establish parity using the following variables: (the students' chronological age in months, their previous academic performance, prior information, intelligence test results, incandescent memory scale), and the subsequent table demonstrates these equivalences:

Table (4): T-values, standard deviation, and arithmetic mean of variables (chronological age, students' prior achievement, intelligence test, incandescent memory scale) for the two research groups

Variable	The Collection	No.	Statistical significance	The two values of Tā		Degree of freedom	Standard deviation	Arithmetic mean
				Tabular	Calculated			
Chronological age	Trial	25	Not statistically significant	2.000	1.258	48	10.250	135.694
	Control	25					9.999	136.570
Students' previous achievement	Trial	25			0.957		2.591	8.957
	Control	25					2.001	9.527
IQ test	Trial	25			0.597		5.528	20.369
	Control	25					4.629	20.090
Incandescent Memory Scale	Trial	25			0.896		7.529	39.520
	Control	25					7.950	38.957

Fourth: Controlling extraneous variables:

In any research experiment, it is essential to control for all factors and variables related to the phenomenon being studied. A set of variables may appear to be influenced by the experiment, with the dependent variable being particularly affected, either positively or negatively. To achieve accurate results, it is necessary to account for the influence of the independent variable by controlling for extraneous variables prior to conducting the experiment. This ensures that only the independent variable is isolated and prevents it from impacting the outcome. The researcher has effectively controlled all extraneous variables that could influence the experiment. These controlled variables include physical factors, time duration, the material being studied, and the sample members' characteristics.

For this study, two research groups were allocated according to the weekly reading schedule specified by the school administration, with two shares per section each week. This allocation is detailed in the following table:

Table 5: Weekly Lesson Schedule for Students in the Two Research Groups

Class time	Class time	The two research groups	Today
Pm	12:30 – 1:05	Control	Sunday
	1:55 - 2:00	Trial	
	12:30 – 1:05	Trial	Tuesday
	1:55 - 2:00	Control	

Fifth: Research Requirements:

(Preparation of basic knowledge) There are some knowledge need to be prepared before we carry out the experiment, such as:

- **Identification of scientific content:** The researcher pinpointed the scientific topics to be taught to students involved in research groups during the experimental period (5th grade of elementary education).
- **Development of Behavioral Objectives:** The researcher created (88) behavioral objectives based on the overall goals and the content of the material to be studied in the experience, distributed across the first three levels of Bloom's classification: (redevelopment, understanding, use), and to ensure the existence of the final. The included content study presented by the researcher to a group of specialists in educational materials and teaching methods, and after the analysis of the answers of arbitrators where the results showed the validation of all the behavioral purposes, according to experts and specialists have been adopted for all objectives and left with the final (88) object Behavioral.
- **Preparation of teaching plans:** The researcher has developed teaching plans for reading topics that will be part of the study's experiment, aligned with the textbook content and Behavioral Objectives. These plans follow Hayes's approach for the experimental group and adhere to the traditional method for the control group., and the researcher presented two Sample teaching plans drafted on a group of the experts in the field of education and teaching methods, in terms of their opinions, observations and proposals to try to improve the drafting of those plans and the soundness - ensure the success of the experiment, based on what was shown by the arbitrators were made some necessary adjustments, and kept to carry out the experiment.

Sixth: Search Tools:

Research tools: the research tools are one of the most important and simple obstacles that are built by the researcher and we limit tools of the research because the research composed on two variables dependents (collecting, incandescent memory) and so the research tool's descriptive achievement test, incandescent Memory-scale and the following detail about the preparation of the two tools:

First : Construction of Achievement test :The researcher developed an achievement test for the reading material for the fifth grade of primary schoolThe researcher adopted the following steps:

- **Setting the test's aim:** The achievement test is designed to measure the fifth grade students' achievement sampleThe of the first three unites of the science book to be taught to fifth grade students of the academic year (2023-2024).
- **Decide the number and types of test items:** After reviewing some theoretical studies aimed to the sample study (fifth grade students) and questioned some experts in educational measurement, the researcher found the test items with (40) items type of objective tests.
- **Preparing the specification table;** the researcher prepared the specification table for the achievement test, and table (8) clarifies that:

Table (8): Specifications table for the achievement test

Chapters	Number of pages	Total	Percentage of behavioral goals			Materiality
			Application	understanding	Remember	
		100%	30%	35%	40%	
Chapter One	13	7	2	2	3	17%
Chapter Two	15	8	2	3	3	20%
Chapter Three	12	6	2	2	2	16%
Chapter Four	14	7	2	2	3	19%
Chapter Five	11	6	2	2	2	15%
Chapter VI	10	6	2	2	2	13%
Total	75	40	12	13	15	100%

✚ **Formulation of test paragraphs:** The researcher prepared (40) items for the the researcher considered in constructing the paragraphs of the achievement test the following remarks: (that the test paragraphs must be clear and specific, each paragraph of the test must measure a specific and clear goal, that is sound in terms of wording and language). [Ø achievement test, Ø, all paragraphs of the type of multiple choice.]

✚ **Instructions in answering and correcting the achievement test paragraphs:-** The development of the test was done in order to obtain good and accurate results, and the researcher thought that understanding of the question is a key to answering that, so the researcher was prepared with a lot of instructions on the development, suggested before the test where the instructions indicated how to respond to the paragraphs, including: The goal of developing the test, and the nature of the contents of the test... etc., and the researcher created a correction key for the objective paragraph (multiple-choice), and the researcher gave one degree for the paragraph that carries a correct answer, and a rejection of the paragraph that contains a wrong answer, and deals with the paragraph left or carries more than a correct answer as the wrong paragraph to reach the highest degree as a whole (40) degrees, the lowest degree (0) zero.

✚ **Authenticity of the test:** For the validation of the achievement test, two categories of integrity were operationalized by the researcher

✚ **Virtual honesty:** The researcher distributed the achievement test attached with the behavioral objectives and the table of specifications to a group of specialists in education and methods of teaching science, and in the light of their opinions and suggestions modified paragraphs or alternatives that need to be modified and the results showed the validity of all test paragraphs, and therefore kept the paragraphs of the test (40) paragraph.

✚ **Content validity:** The test items represent the academic items and are inclusive of it, by referring the to the specification table.

➤ **Exploratory use of the achievement test:** The achievement test was used exploratory and in two phases:

✚ **The initial Applicatio, the preliminary application:** a practice test was applied in the first preparatory stage for the fifth grade students in the school (Shuhada Al-Hashemite for Girls) number of students the (30) students, and the goal of this to know the clarity of the instructions and commands of the test and the extent of understanding and clarity of the test paragraphs by students, and to calculate the time it takes for the student to solve the test, and the researcher reached time average to answer the test paragraphs are calculated by averaging students' response time, through recording time on answer sheet to each student upon completion of the answer.

✚ **The second application study:** test had been applied on a sample of (100) female-students for the fifth-grade primary students in (Shuhada Al-Hashimiya for Girls) to statistically analyze paragraphs of the achievement test presented at : a difficulty of the paragraph, strength of the paragraphs discrimination, effectiveness for wrong alternatives, along with the consistency of the test.

✚ **Accuracy study of the items of the achievement test 1- Mathematic treatment of the items of achievement test:** The researcher corrected the answers of students' attitudes of the survey sample that amount (100) students, and he classified them from the least degree is (7) to the highest one is (37), so as to apply the following statistical treatments:

✚ **Difficulty Coefficient** for Paragraph When I calculated the difficulty coefficient of each paragraph of the test in the multiple choice items, I saw that it just varied between 0.41-0.70.

✚ **Paragraph discrimination value:** It was found that the discriminative power of each paragraph of testing items were in the range of (0.33-0.56).

✚ **The effectiveness of the incorrect alternatives:** While assessing the effectiveness of the correct alternatives to the objective test items, the researcher discovered that these values range from (-0.04 to -0.26).

✚ **Stability of the test:** The researcher applied a half fractionation method to assess the test's stability, which was initially determined using the Pearson correlation coefficient. This yielded a value of (0.80), which was subsequently adjusted with the Spearman-Brown equation to achieve (0.89). The test is considered stable.

Second: Incandescent Memory Scale

Incandescent memory The incandescent memory as the second dependent variable of this study, the researcher prepared the scale of incandescent memory for the primary fifth grade after the reference to studies carried out in this field and a review of the literature Psychological and deal with the incandescent memory, where the researcher did not find a scale commensurate with the sample and dimensions of the current study, this requires the construction of the document, and in order to it should be, as has been identify the theoretical foundations, in which the researcher depends in the building of the document, this is necessary, because they provides a clear image, through which to test the process of the construction of the scale.

- **Goal of the scale setting:** The purpose of the scale is to investigate the spontaneous memory of the subjects in the research sample (fifth-grade primary school students).
- **as the scale includes (three areas of incandescent memory) and ensure the validity of the selection of these areas;** they are presented to a group of experts in educational and psychological sciences, so that they verify the validity of the areas to measure incandescent memory, and in the light of the opinions and the observations of the experts, all fields have obtained the approval of the experts, as a suit of paragraph has been obtained numbering 30, then I have connectors them the fields of the scale flammable memory previously identified, the fields of the three that each field / 10 paragraphs, and the researcher has been keen that these paragraphs are suitable for the nature of the sample and have been reformulated more than once, to be clear through understanding.
- **Scoring the alternatives to the scale:** Answers for in front of each paragraph were provided three answers, including (applies (to me often) and the degree (2), and excluded (does not apply) and the degree (1)), as the (3) degree has been assigned to the always paragraph (applies to me) if the student answered these 3 alternatives based on these substitutions, the scale score whether for or against, that the student can score in scale equal (90) degrees and the lowest degree is (30) degrees, and the average hypothesis (theoratically) for the scale equal (45) degrees.
- **Incandescent memory scale The scale included instructions on how to respond it and how to direct students to respond in a correct way,** it make students read the paragraphs of the scale carefully and honestly to put a mark (✓) in the square before the alternative which reflects their opinions and that the students don't leave any paragraph without an answer, and an example for how to respond its paragraphs.
- **Correction of the scale** The researcher opted to correct the scale using the Likert method.
- **Test validity:** Face validity of the incandescent memory scale was taken as:
- ✚ **Virtual regularization:** To ensure the apparent regularization of the scale, the researcher presented a proposal for the scale to a group of experts and arbitrators specializing in the field of education and methodologies, and asked them to express their views on the extent of the approval of the scale validity to submit to the research And the researcher used the chi-square test in analyzing the opinions of expiring the percentage of consent (Tarria) (80%) and higher as a criterion, and the approved proportion of the scales reviewed approval of the validity of (26) expression obtained approval from the experts and the arbitrators specialize in the area for which it has been developed and for the purpose for which designed and accordingly the scales leave (30) aid.
- **Application of incandescent memory scale to the study sample:**
- ✚ **The first exploratory sample:** For the purpose of testing the clarity of the paragraphs and to determine the time needed to answer all the paragraphs of the test, the researcher also applied the scale to an exploratory sample of (30) schoolgirls from a school (Before applying those paragraphs to an exploratory sample, they were applied to a pilot sample, which included (12) of the studying females at the College of Basic Education, and under the researcher's supervision of the paragraphs application he noted that the answer instructions and the sub-paragraphs of the test were clear based on the lack of the sample's inquiry of how to respond As for the time for the test, the researcher calculated it by taking the average of the time that all the students took to answer the first sample, and that is represented by (42) minutes and then the average time (42) was calculated by collecting the times that all the students have taken after recording the answer time for each student on her answer sheet.
- **The Second Exploratory Sample (A Sample Analysis Statistics):** The application The memory scale incandescent to a sample of (100) students (Shuhada Hashemite Girls) and the researcher herself oversee the scale applied in cooperation with the teacher material and after correcting the correct answers on the student researcher arranged the grades and declined the extraction discriminatory force and reliability coefficient, and then selects the extreme samples Upper and lower by (27%) as the two extreme groups is the most representative of the entire sample Spoiler The following are the procedures for statistical analysis of the paragraphs of the scale:
- **Construct Validity:** The researcher Compatibility of construction: The researcher verified the compatibility of construction of the dime scale of memory incandescent although also verified the compatibility of the scale in terms of for example (the truth) from dimensions of the study sample used in the statistical treatment of the scale to determine the next:
- **Relationship of the degree of the paragraph with the total degree of the scale :** to determine the extent of the relationship of degree of each of the paragraphs and the total mark of the scale, I submitted students marks from the second exploratory sample and number (100) students score degrees, upon the paragraphs analysis which is the same sample that the strength of paragraphs of the scale on which have been calculated and according to correlationcoefficient between degree for each of the paragraph with the degree for scale as a whole by using the correlationcoefficient of Pearson and keep all paragraphs of the scale denominator (30) material, shown in Table (11) that :

Table (11): Correlation coefficients between the score of the paragraph and the total score of the scale

Correlation coefficient	t	Correlation coefficient	t	Correlation coefficient	t
0.46	21	0.59	11	0.45	1
0.44	22	0.47	12	0.41	2
0.48	23	0.52	13	0.49	3
0.57	24	0.53	14	0.38	4
0.50	25	0.38	15	0.58	5
0.46	26	0.37	16	0.55	6
0.39	27	0.40	17	0.52	7
0.53	28	0.42	18	0.50	8
0.52	29	0.43	19	0.58	9
0.49	30	0.47	20	0.49	10

✚ **The relationship of the degree of the paragraph with the total degree of the field:** In order to statistically assess the sincerity of the scale's internal consistency, the Pearson correlation coefficient and the statistical significance level were calculated between each paragraph's score and the field's score. These correlation coefficients are strong, indicating that all correlations between the paragraphs and field scores are statistically significant. This implies that these areas genuinely measure or represent incandescent memory, thereby distinguishing the incandescent memory scale in relation to reading material with structural integrity. Table (12) illustrates this:

Table (12): Correlation coefficients between the degree of the paragraph and the degree of the field

Third area		Second area		First area	
Paragraph	T	Paragraph	t	Paragraph	t
0.47	21	0.50	11	0.33	1
0.46	22	0.53	12	0.31	2
0.42	23	0.52	13	0.32	3
0.41	24	0.58	14	0.35	4
0.46	25	0.47	15	0.45	5
0.44	26	0.49	16	0.46	6
0.39	27	0.42	17	0.47	7
0.38	28	0.45	18	0.49	8
0.32	29	0.53	19	0.41	9
0.36	30	0.55	20	0.42	10

✚ **The relationship of the degree of the field with the total degree of the scale:** The degree of each field should correspond to the total score of the scale. The correlation coefficients between the degree of each domain and the total score were determined using the Pearson correlation coefficient. Table (13) illustrates that:

Table (13): Correlation coefficients between the score of the domain and the total score of the scale

#	Correlation coefficient	Domain	t	Correlation coefficient	Domain	t	Correlation coefficient	Domain
1	0.82	Third	3	0.79	Second	2	0.77	First

➤ **Discrimination paragraphs force paragraphs:** The coefficient of discrimination has been represented for paragraphs of the scale, and was found that T-value was between (1.81 - 4,032) as (Ebel'1979) is considered the paragraph to be accepted if the value coefficient of discrimination (0.20) and above;

➤ **Stability of the scale:** There are many ways to assess the stability of the scale has been used by the researcher to estimate the stability coefficient coefficient alpha_ Cro Nabach _ Cro Nabach was calculated to estimate the internal consistency of the scale and the degree of the second sample was exploratory as it reached (0.849) and stability Coase good.

Seventh: Statistical Methods:

Statistical data was analyzed using statistical bag SPSS program.

RESULTS PRESENTATION AND INTERPRETATION

FIRST: PRESENTATION OF RESULTS

➤ The results of the first hypothesis: The researcher prepared a test in the Achievement for reading material and applied the research groups After testing the papers of the students of the two groups And listening to their grades after they have been corrected Then the research average and the standard deviation for the grades of the two research groups were calculated and T-test was then applied for two independent samples Extracted shows Table (14) Table (14): Differences between the averages of the two research groups First group Second group Observed Standard In the groups level T ate level Group N Averages deviation (P > (KK H N H 2 scores ArisH1 (3 2 04 - 6 1 37 012) (1 001) Sig) 2 231 3 671-08 1 68 -3 000 037)0242) (0006) Significant The results of the test of the differences between the two research groups are shown in Table (14):

Table (14): Arithmetic mean, standard deviation, variance and T-values of students' grades

The two research groups in the academic achievement test in the reading subject

The Collection	Statistical significance	The two values of Tā		Degree of freedom	Standard deviation	Arithmetic mean	Number
		Tabular	Calculated				
Trial	Sig.	2.000	4.259	48	5.659	28.590	25
Control					4.990	21.659	25

The results of Table (14) show that the mean rate for the scores of the trial group students is (28.590) with a SD of (5.659) and the mean rate for the scores of the control group students is (21.659) with a SD of (4.990), as well as the value of the (t-test) is (4.259), that is greater than the tabular T value that is (2), at df (48); accordingly it is clear that the trial group outscore in the achievement test.

➤ **Second Hypothesis Results:** The mean, standard deviation and variance of the thermal effect memory scale were computed for the scores of the students in the two groups and of the students, then T-test for two independent samples was used as it is illustrated by the following table (15).

Table (15): Mean, standard deviation, calculated and tabular T-values

For the incandescent memory scale, the students' grades in the two groups in the incandescent memory scale.

The Collection	Statistical significance	The two values of Tā		Degree of freedom	Standard deviation	Arithmetic mean	No.
		Tabular	Calculated				
Trial	D	2.000	4.510	48	12.658	78.952	25
Control					13.587	41.951	25

Table (10) shows that the mean of the scores of the students of the experimental group (78.952) and the degree of deviation (12.658) and the mean of the scores of the students of the control group (41.951) and a deviation (13.587), and after the application of the t-test for two independent samples, that the value of the test for two samples independent (t = 4.510) and this was larger than the expected value (2.000), it is clear the superiority of the experimental group over the students of the control group in test of incandescent memory.

Effect size: To know the effect of teaching Hayes method on the achievement and the incandescent memory among the fifth primary grade in reading, the researcher calculated to know the effect size by using Cohen formula as we see in table (17).

Table (17): The size of the effect of the independent variable in the variable of the collection of reading material and incandescent memory

The amount of impact size	Impact size value	Dependent variable	Independent variable
big	0.841	Collection of reading material	Hayes method
big	0.909	Incandescent memory	

Second: Interpretation of the results:

➤ **Interpret results of the first null hypothesis:**

1. Using the Hayes method of teaching, has improved the significant differences in scientific concepts understanding through the opportunity of the cooperative group on the subjects that the students talk about, so raising their level of understanding and their levels of achievement.

2. The use of the Hayes method (1970) had a significant effectiveness through connecting between the old information and new information, the questions of the researcher during the introduction of the lesson, whereby the concepts that students own from the new topic were disclosed, and so the students will be intrigued and motivated to participate effectively in the lesson, which in turn leads to the psychological consolidation of the information.

➤ **Interpretation of the findings for the second null hypothesis:**

1. The utilization of the method of the Hayes was an incentive to awaken the incandescent recollection of the students when they sought and investigated the facts and information, which disclosed the ambiguity in the content of the printed material which they were reading, inferred what is right, and judged with regard to its authentic (information) by that means, and thus their incandescent recollection was aroused.”

2. This is where the "Hayes" method also works very well in prompting students to incandescent memory with a series of questions set by the teacher after handing out worksheets.

CONCLUSIONS

Conclusion Based upon the experiment conducted by the researcher, its findings, and the inferences derived from the investigation, the researcher concluded as follows:

1. The Hayes method is effective in developing the achievement level of the fifth grade students in reading subject, their comprehension of information, facts, and knowledge, and their academic achievement.
2. Hayes technique plays significant impact in improving the level of incandescent memory of fifth grade school children.

RECOMMENDATIONS

1. The necessity for the use of the Hayes method in teaching reading at the elementary and intermediate levels.
2. Encourage the Directorate of Education/Babel to implement a training course and teaching programs for teachers, as well as for those interested in reading information within the governorate's schools. The aim is to equip them with advanced modern teaching methods, including the Hayes method, to enhance student achievement levels and introduce new approaches, given that the conventional method has lost its effectiveness.
3. The need to insert the Hayes method in the subject of science teaching methods (at the basic and postgraduate level).

PROPOSALS

1. Repeating this study using the Hayes method, in other populations/stages (biology, chemistry, physics).
2. Homeschool, A comparison of the Hayes method and contemporary teaching techniques born of good teaching practices in various age variables and procedures.

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