

# THE EFFECTIVENESS OF THE INTERACTIVE MIND ARCHITECTURE AND SAFE LEARNING STRATEGIES IN ACQUIRING HISTORICAL CONCEPTS AND INTEGRATIVE THINKING AMONG FIRST-YEAR INTERMEDIATE STUDENTS IN SOCIAL STUDIES

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## ABSTRACT

The research aims to measure the effectiveness of the two strategies (the architecture of the reciprocal mind and safe learning) in acquiring historical concepts and integrative thinking among first-year middle school students in the subject of social studies. To achieve the research goal, the researchers followed the quasi-experimental approach. The research community consisted of first-year middle school students, with the sample amounting to (96) students, who were distributed into research groups (control and two experimental), with (32) students for each group. The researchers were keen to achieve statistical equivalence between the students of the three research groups through selected variables that included: (chronological age calculated in months, previous achievement, in addition to intelligence as measured by the Raven test, and integrative thinking). The researchers prepared two research tools, the first of which was the test of acquiring historical concepts, and the second was the test of integrative thinking. The concept acquisition paragraphs amounted to (40) objective paragraphs with four alternatives. The number of paragraphs of the integrative thinking scale amounted to (40) distributed over three areas. After verifying their validity and reliability, they were applied to the basic research sample. The researchers used the statistical package (spss) for the social sciences to analyze the research results, which resulted in a statistically significant superiority of the two experimental groups compared to the control group. Based on the results and conclusions arising from them, a number of questions were formulated. From the research and scientific recommendations and proposals discussed in Chapter Four.

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**KEYWORDS:** Strategy, Effectiveness, Mind Architecture, Secure Learning, Acquisition, Concepts, History, Integrative Thinking

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## Chapter One - Introduction to Research

### First: The Research Problem:

The world is witnessing multiple changes that have forced education to reconsider the nature of its educational tools, to ensure they keep pace with new developments, advancements, and contemporary trends. One of these tools is the textbook. Due to its close connection to the curricula, achieving educational goals and voices calling for the importance of advancing the educational institution, how to achieve its goals, increasing student interaction, and their participation in activities that stimulate their thinking and generate creative ideas within them, which may positively reflect on the reality of achievement or the acquisition of concepts. All of this has cast a shadow over the social studies teacher, given the objectives of this subject that contribute to the creation of useful generations in society. However, the field reality indicates a flaw or weakness in the student's role in acquiring knowledge and applying it in his life. The reality of the matter indicates that the student continues to receive information and experiences ready-made from the teacher by adopting less effective teaching methods, which is reflected in the student's level in social studies subjects (Al-Zubaidi, 2010: 13). Many studies, including those by (Mahood, 2014) and (Balbas et al., 2023), have indicated the inability or limitations of conventional methods in teaching historical concepts. Educational systems often take a path that contradicts the growth of thinking or creativity. The requirements for success in our schools, including intermediate education, focus primarily on measuring the ability to memorize and emulate, or what is known as the "indoctrinated" approach to education, if that is the correct expression. Their increasing focus on achievement tests has transformed the learner into a passive vessel, filled with information, emptied onto the exam paper, and then forgotten.

To further clarify this reality, the researchers conducted a survey of the opinions of (20) social studies teachers, randomly selected from various schools in the center of Babil Governorate. Their responses confirmed what was previously mentioned: the difficulty of imparting historical concepts using the usual teaching method. From their own experience of the educational reality of the researchers, they found themselves faced with an obsession and a painful gap between what education aspires to for its students and what traditional methods offer, which perpetuates dependency and stagnation. The current research

problem is represented by the following question:

"What is the effectiveness of the reciprocal mind architecture and safe learning strategies in acquiring historical concepts and integrative thinking among first-year middle school students in the social studies subject?" Second: The importance of the research: The rapid and profound changes in various aspects of life in contemporary societies today have led to the formation of new intellectual trends that have brought about fundamental transformations in education and opened the door wide for its development in thought and practice. This enables it to respond to the demands of modernity and assume the role of leading change in society, considering it the main factor for comprehensive development, one of the foundations of the knowledge revolution within it, and the starting point for a comprehensive renaissance for the future (Muhammad, 2011: 105). The role of the teacher comes in translating these trends through choosing an effective teaching method, which is one of the important reasons for the success of the educational process, due to its multiplicity. There is no ideal method or strategy suitable for teaching. Therefore, the teacher must be knowledgeable in choosing the best of them, in line with the subject they are teaching, to achieve the objectives and acquire scientific concepts (Zoha, 2020; 15), including (historical), which helps in understanding the structure of science and its development. It forms the basis of science and scientific knowledge; concepts form the cornerstone of scientific theories as well as principles and generalizations, as they reduce the amount of facts, and can be considered easier to remember, more stable, and more stable in the learner's memory, in addition to helping organize experience, reduce re-learning, and contribute to the transfer of the learning effect through its application in different situations. It also stimulates mental growth, pushes it forward, and helps thinking in facing scientific problems and challenges, and finding solutions to them, as it is considered one of the basic tools of investigative thinking (Al-Khattabiyya, 2011: 40). There is no doubt that successful teaching methods in classroom situations require presenting facts, information, and concepts, and achieving them in a way that enhances learners' participation in the educational process, in addition to the role of the teacher in each subject using an appropriate method. All of this leads to conveying historical material to the minds of learners with high efficiency; This is clearly evident in his teaching method and in the educational goals that education

seeks to achieve with less effort and time (Drouzeh, 2000: 24).

Adolescence is a stage of major change, during which the student transitions from childhood to adulthood—the beginning of assuming responsibility with all its personal and social components. The more experiences, knowledge, and information this stage provides, the more these experiences enable them to safely navigate it. Hence, efforts are made to provide the necessary resources to instill trust between them, as well as to communicate concepts related to their developmental progress and abandon the search for information from unsafe sources (Gharab, 2015: 31). The intermediate stage falls within the chronological sequence of adolescence and is characterized by clear, continuous growth toward personal maturity. Tendencies and desires begin to emerge, and the learner's ability to imagine abstractly based on words increases. It is also an important stage in developing their abilities and readiness, and saturating them with a sufficient amount of knowledge and values (Zahran, 1995: 324). The needs that he seeks to satisfy are multiple, including (the need for security), which means freedom from fear, anxiety, and threats in all their forms. It also refers to the student's desire for safety, security, and reassurance in avoiding anxiety, disturbance, and fear through their tendency to prefer routine or familiar, recurring behavioral patterns, i.e., avoiding strange and unfamiliar situations for them (Al-Fakharani, 2014: 103). The teacher is an important factor in building the student's personality, as he is responsible for building him physically, mentally, and socially. He is also the facilitator of knowledge for students, building their thinking, and an effective element in confronting the scientific and technological changes occurring in the twenty-first century. The process of preparing and training him in light of modern trends is one of the tasks that education aspires to, as the teacher is the cornerstone of the teaching and educational process, and he is able to develop thinking patterns and students' mental abilities, and compensate for any weakness or shortcoming in curricula, books, and educational activities, by interacting with them on the one hand, and finding Ways for students to freely participate in the classroom. This, on the other hand, requires careful consideration of the content of the curriculum and its teaching methods (Al-Asadi, 2020: 5).

Most constructivist theorists believe that learning is purposeful, pursued by the student; To achieve specific goals that contribute to solving or

confronting a problem, to answer puzzling questions, or to satisfy an internal inclination toward learning certain topics. These goals guide the student's activities and serve as an intrinsic motivational force that propels them toward achieving their desired goals (Zaytoun and Kamal, 2003: 99). The curriculum and its content play a role in achieving these goals. The social studies book, as part of the school curriculum, represents a source of social learning and social education that stimulates students' interest and encourages their conscious participation in confronting the challenges of their society in various forms (economic, political, social, scientific, and technological). It also contributes to stimulating scientific thinking in its various forms and facilitating their understanding of generalizations based on inference and scientific hypotheses. The strategies of "the architecture of the mind" and "safe learning" are important strategies that may help develop the abilities of students at this stage of life and study. Because it has a theoretical background based on one of the important theories that depends on constructing information in a gradual and easy manner.

Integrative thinking is an important type of thinking that must be developed in students. Modern methods and approaches must be found to acquire and develop it. It brings about psychological changes that represent a positive aspect of psychological development. At the same time, it is a way of thinking that summarizes key generalities through a broader perspective, i.e., by shortening proposals, rather than leaving many of them separate. It also makes the learner innovative, distinguished, and creative by presenting historical academic information in the form of collaborative educational projects. It works to develop a deep understanding of scientific issues, while simultaneously enhancing the ability to make evidence-based judgments. It increases students' self-confidence and enhances their ability to retain education and learning (Aziz, Iyad, 2024: 20). Based on what has been mentioned, the importance of the research is evident in:

1. The importance of the intermediate stage, where the student transitions from childhood to adulthood and adolescence, the stage of acquiring knowledge and information that shapes personality and assumes responsibility.
2. The importance of teaching strategies, methods, and techniques used by teachers, including the "Reciprocal Mind Architecture" and "Safe Learning" strategies, which can help students learn, think, participate effectively, and acquire

educational experiences in an efficient manner.

3. The importance of acquiring historical concepts, which constitute a bridge between the past and the future.
4. The importance of integrative thinking by placing a central value on education by welcoming surprises rather than fears.
4. The importance of cognitive construction in leveraging previous experiences and developing them with new knowledge, data, and facts.

Third: Research Objectives: The research aims to identify:

1. "The effectiveness of the "Reciprocal Mind Architecture" strategy in acquiring historical concepts and integrative thinking among first-year middle school students in the Social Studies subject."
2. "The effectiveness of the "Safe Learning" strategy in acquiring historical concepts and integrative thinking among first-year middle school students in the Social Studies subject."

Fourth: Research Hypotheses:

1. "There are no statistically significant differences at the 0.05 level between the average scores of students studying according to the "Transactional Mind Architecture" strategy and the average scores of students studying according to the traditional method on the historical concepts acquisition test."
2. "There are no statistically significant differences at the 0.05 level between the average scores of students studying according to the "Safe Learning" strategy and the average scores of students studying according to the traditional method on the historical concepts acquisition test."
3. There are no statistically significant differences at the 0.05 level between the average scores of students studying according to the "Transactional Mind Architecture" strategy and the average scores of students studying according to the "Safe Learning" strategy on the historical concepts acquisition test.
4. There are no statistically significant differences at the 0.05 level between the average scores of students studying according to the "Transactional Mind Architecture" strategy and the average scores of students studying according to the traditional method on the scale prepared for this purpose.
5. There are no statistically significant differences at the level of (0.05) between the average scores of (integrated thinking) among students who study according to the (safe learning) strategy, and the

average scores of (integrated thinking) among students who study according to the traditional method, in the scale prepared for this purpose.

6. There are no statistically significant differences at the 0.05 level between the average scores of students studying using the "Transactional Mind Architecture" strategy and the average scores of students studying using the "Safe Learning Strategy" on the scale prepared for this purpose.

Fifth: Research Limits: The research is defined by the following limits:

1. Spatial: Intermediate and day schools affiliated with the General Directorate of Education in Babil Governorate/Central.
2. Temporal: Academic year 2024-2025.
3. Human: First-year intermediate students.
4. Cognitive: Social Studies textbook for the first-year intermediate class, scheduled for the academic year 2024-2025.

#### Sixth: Research Terms:

##### 1. Effectiveness:

(Schiliqer, 2010) defined it as: "The potential or continuous impact of providing more advantages and positives to influence outcomes" (Schiliqer, 2010; 3)

A. The operational definition of effectiveness: The ability of students in the experimental group to achieve the desired results after studying the Social Studies subject for the second intermediate grade according to the steps of the strategies (the Interchangeable Mind Architecture and Secure Learning).

2. The Interchangeable Mind Architecture strategy:

A. (Al-Barrak, 2025) defined it as: "An innovative teaching strategy based on building knowledge in a gradual and organized manner according to integrated mental levels, starting with basic information and extending to interpretation and analysis in a manner consistent with the cognitive structure of the human mind. This strategy relies on organizing scientific content into sequential cognitive layers formulated in a way that allows the student to move between cognitive levels in a cumulative and interactive manner" (Al-Barrak, 2025: 266).

B. The operational definition of the "Reciprocal Mind Architecture" strategy is: a set of teaching procedures and activities that are consistent with the intellectual levels of first-year middle school students. It relies on organizing the content of the social studies subject within the experiment in a logical and sequential manner, taking into

account the students' previous knowledge and integrating new information into their cognitive structure. This is done to arrive at new information that is consistent with their cognitive structure and helps them acquire historical concepts. The teacher works to prepare the subject content in a gradual, sequential, and organized manner, which motivates students to organize their thoughts and take on interactive, reciprocal roles that rely on collective participation in presenting the content. This is measured by a test designed for this purpose. 3. The "Safe Learning" strategy is defined by:

- A. (Al-Barrak, 2025): "An educational strategy that aims to provide a psychologically and physically safe classroom environment that meets students' basic psychological needs, according to Maslow's hierarchy. This creates a sense of stability and reassurance within them and supports student motivation for effective and sustainable learning. This strategy also relies on activating the teacher's role in providing emotional and social support and developing positive relationships within the classroom, with a focus on meeting the needs for safety, belonging, and psychological appreciation. This contributes to raising the level of academic achievement and developing thinking and self-esteem" (Al-Barrak, 2025: 266).
- B. The operational definition of the "Safe Learning" strategy is: A set of teaching procedures and activities that focus on motivating first-year middle school students to acquire historical concepts through the exchange of information and ideas with the teacher, who, in turn, provides an appropriate learning environment based on encouragement, motivation, and psychological and social support. This is considered one of the foundations for meeting students' needs, which contributes to the acquisition of these concepts. It is measured by a test designed for this purpose.
4. Acquisition of historical concepts: defined by:
- A. (Al-Bakri, 2024) as: "Retaining historical information, utilizing it, and applying it in various situations. This acquisition of concepts depends on the student's knowledge of previous concepts, which are essential for acquiring new concepts" (Al-Bakri, 2024: 71).
- B. The operational definition of acquiring historical concepts: Retaining the historical information contained in the content of the social studies book for the first intermediate grade, utilizing it, and applying it in various situations, measured

by the score the student obtains when answering the sections of the historical concepts acquisition test for the purposes of the current research.

5. The operational definition of the intermediate stage: This is the academic stage that precedes the preparatory stage and follows the primary stage. The duration of study is three years, encompassing the ages (13-15). It complements the study of the primary stage and provides students with broader information.
6. Integrative thinking: defined by:
- A. (Martin, 2007) defines it as: "An advanced pattern of human thinking that aims to integrate seemingly conflicting ideas or concepts into a single, coherent framework that develops strategic capabilities and effective decision-making. It also enhances students' ability to evaluate complex situations and cope with the pressures resulting from intellectual conflict." (Martin, 2007: 7)
- B. Operational definition of integrative thinking: The score achieved by first-year middle school students on the integrative thinking scale.

## Chapter Two - Theoretical Framework and Previous Studies

### First: Theoretical Framework:

- Constructivism: "A cognitive vision that suggests that the human self-shapes reality through mental interactions between existing and new information and knowledge, based on integrating these knowledge and knowledge together and restoring cognitive balance between them to obtain new and diverse knowledge. This contributes to organizing and modifying the cognitive structure within the learner and using the acquired knowledge in new learning situations. On this basis, the elements that represent the core of constructivism in knowledge formation and perception of reality are the human self, or the learner and their prior knowledge, represented by the mental structures they have formed through their experiences and previous learning, new situations, or the learning content and educational climate represented by the learning environment and its physical and psychological elements (Atiya, 2015: 248).
- The Interchangeable Mind Architecture Strategy:
  1. The theoretical basis of the Interchangeable Mind Architecture Strategy:
  2. The teacher's role in the Interchangeable Mind Architecture Strategy: The teacher has several roles in teaching this strategy, including:
    - Preparing the cognitive content at gradual,

organizational levels.

- Students participate in the educational activity according to the interchangeable roles.
  - Designing an interactive classroom environment to encourage students to participate and think collaboratively.
3. The student's role in the Interchangeable Mind Architecture Strategy:
- Participates in the exchange of mental roles among group members.
  - Builds their knowledge interactively within the cognitive levels.
  - Activates higher-order thinking skills (analysis, synthesis, evaluation).
4. Steps for implementing the Interchangeable Mind Architecture Strategy:
- A. Architectural Preparation: The teacher presents the concept in the form of a three-layer cognitive map (basics, links, extensions).
  - B. Interchangeable Distribution: Students are divided into groups, and each group is assigned a role (analyst, summarizer, critic, or explainer).
  - C. Guided Exploration: Groups perform tasks as a destination using hybrid learning models.
  - c. Cognitive Exchange: Groups alternate roles, allowing each student to experience more than one cognitive role.
  - c. Integrated Construction: Each group reconstructs the "conceptual architecture" using interactive visual media (diagram, map, interactive presentation).
  - h. Reflective Questioning: Questions are asked at the level of probing and positive thinking to examine the quality of mental construction.
  - g. Active Closure: The lesson concludes with a comprehensive activity that integrates the three layers of knowledge (Al-Barak, 2025: 267).
- Humanistic Theory (Maslow's Needs Theory): "The term 'need' refers to any state of deficiency, lack, or physical or psychological disturbance that has not been satisfied, causing a form of tension in the individual" (Crom, 2020: 141).
- Maslow presented his 1943 research paper, "A Theory of Human Motivation," in which he rejected the interpretation of motivation in terms of two-link or behavioral concepts, such as incentive, deprivation, and reinforcement, although he acknowledged that people are driven to satisfy their physiological, or basic, needs before moving to the next level of human needs. Maslow intended to focus on what truly motivates people to work, or what makes them happy by increasing their productivity. He also introduced the concept of a hierarchical ascent. To facilitate understanding of

the motivation system, its complex operation, and (a need that is satisfied is no longer a need), and to organize them into (physiological needs, security needs, love and survival needs, esteem needs, and self-actualization) (Al-Fakharani, 2014: 103).

- Theoretical basis for the Safe Learning Strategy:

The "Safe Learning" strategy is based on Maslow's theory of human needs, which emphasizes that "fulfilling basic psychological needs, such as physiological needs, safety, belonging, and esteem, paves the way for effective learning in the educational context." It examines the importance of providing a psychologically and physically safe classroom environment to enhance student motivation and reduce anxiety, which positively impacts their academic achievement. It also emphasizes the role of positive relationships between teachers and students in supporting psychological and cognitive development.

1. The Teacher's Role in the Safe Learning Strategy:

- A. Creating a psychologically and physically safe classroom environment that enhances students' feelings of security and stability.
- B. Identifying students' psychological needs and working to meet them through support and guidance.
- C. Building positive, communicative relationships that encourage participation and interaction within the classroom.
- C. Providing ongoing positive incentives and reinforcements to enhance self-confidence and learning motivation.

2. The Student's Role in the Safe Learning Strategy:

- A. Expressing their psychological and social needs in an appropriate and open manner.
- B. Active participation and positive interaction within a safe classroom environment.
- C. Supporting and strengthening relationships with their peers to build an atmosphere of belonging and cooperation.

3. Steps to Implement the Safe Learning Strategy:

- A. Positive Psychological Preparation: The teacher begins by warmly greeting each student and asking, "How are you today?" "Are you ready for an enjoyable and safe lesson together?" The goal is to create an atmosphere of trust and psychological comfort.
- B. Asking an open-ended introductory question: The teacher asks a question that stimulates students' thinking: What do you know about today's topic? Would you like to share your thoughts with me? The goal encourages everyone to participate freely.

- C. Supporting and strengthening relationships with classmates to build an atmosphere of belonging and cooperation.
- D. Continuously striving for self-fulfillment by accepting challenges and developing skills.
- 5. Steps for implementing the Safe Learning Strategy:
  - A. Positive psychological preparation: The teacher begins with a warm greeting to each student and asks, "How are you today?" "Are you ready for a fun and safe lesson together?" to create an atmosphere of trust and psychological comfort.
  - B. Asking an open-ended introductory question: The teacher asks a question that stimulates students' thinking, "What do you know about today's topic?" "Would you like to share your ideas with me?" The goal: To encourage everyone to participate freely.
  - c. Presenting information in a supportive manner: The teacher presents the content clearly, links it to real-life examples, and opens the door for students to ask questions during the explanation.
  - d. Dividing students into small groups to discuss a specific point: Discuss a new idea from the lesson with your classmates. The teacher visits the groups to provide support and motivation.
  - c. Asking individual exploratory questions: The teacher asks open-ended questions such as, "How can we use what we have learned in our lives?" The teacher listens to the answers and encourages the students.
  - h. Concluding the lesson with a self-assessment: Students are asked to express their feelings about the lesson. How did you feel during the lesson? Did you feel safe and supported? (Al-Barak, 2025: 271).

#### □ Integrative Thinking:

Integrative thinking represents a way of thinking that summarizes proposals into a single image, rather than being general and separate in large numbers. It is one of the optimal patterns of thinking based on cooperation, which represents the spirit of work, where efforts and energies are combined in a way that saves time to achieve the desired (intended) goal.

#### Steps of Integrative Thinking:

1. Directing opposing models: i.e., transforming the presented problem into a two-sided challenge, each with a solution, to the main problem.
2. Presenting solution models clearly, finding the connections and differences between them, by asking questions and using tools such as causal modeling.
3. Moving on to constructing integrative solutions - models - based on analyzing the two solution models and formulating a better answer by presenting guiding questions; this enhances the

generation of possibilities, thus exploring the image of the optimal solution to the main problem.

4. Formulating a New Idea: The decision is made at this step, moving from idea to action, after obtaining the optimal, correct solution to the problem and implementing it (Martin, 2007: 57).

#### Second: Previous Studies:

1. The study (Mahood, 2014): The study aimed to determine "the effect of using the guided imagination strategy on the acquisition of historical concepts among fifth-grade primary school students in the history subject." The researcher chose an experimental approach with partial control, and selected two groups, one experimental and the other control, from a random sample of one of the schools in the center of Maysan Governorate for the academic year (2013-2014). The following statistical methods were used: "the t-test, chi-square, the point correlation coefficient," the Pearson correlation coefficient, the item difficulty and discrimination coefficient, the effectiveness of false alternatives, and the Kuder-Richardson equation. The researcher concluded that the students in the experimental group outperformed the control group" (Mahood, 2014: 180).
2. Study (Balbas et al., 2023): The study aimed to determine "the effect of the place mat and error-finding strategies on the achievement of tenth-grade female students in history." The researchers chose a partially controlled experimental approach, and selected two groups, one experimental and the other control, who were intentionally selected from a middle and high school in Erbil Governorate, Dashti-Hawler Education Department, for the academic year (2022-2023). They used the following statistical methods: t-test, chi-square, Pearson's correlation coefficient, item difficulty and discrimination coefficient, and the effectiveness of false alternatives. The results showed that the students in the experimental group outperformed the control group (Balbas et al., 2023: 383-407).

### Chapter Three - Research Methodology and Procedures

First: Research Methodology: The researchers adopted the quasi-experimental approach; To achieve the research objectives, it is one of the most accurate and efficient scientific research methods for arriving at reliable results.

Second: Experimental Design: "The researchers adopted a partially controlled experimental design

for two experimental groups and one control group with a post-test to test the acquisition of historical

concepts and a measure of integrative thinking." The following diagram illustrates this.

Groups	Equivalence	Independent Variable	Dependent Variable	Research Tool
First Experimental	1. Chronological age (measured in months) 2. Previous achievement in Social Studies 3. Raven's Intelligence Test	Reciprocal Mind Architecture Strategy	Acquisition of historical concepts - Integrative thinking	Historical Concepts Acquisition Test - Integrative Thinking Scale
Second Experimental		Safe Learning Strategy	Acquisition of historical concepts - Integrative thinking	Historical Concepts Acquisition Test - Integrative Thinking Scale
Control		Traditional Method	Acquisition of historical concepts - Integrative thinking	Historical Concepts Acquisition Test - Integrative Thinking Scale

Diagram (1): The experimental design adopted in research

Third: The research community and its sample, which includes:

1. The research community: The current research community consisted of first-grade middle school students in government daytime middle schools for boys affiliated with the Babil Education Directorate - Center, for the academic year (2024-2025).
2. The research sample: The researchers chose a research sample representative of the characteristics of the original community. The following is a description of the procedures for selecting that sample:
  - A. The community of education departments or directorates and its sample: The researchers chose the General Directorate of Education in Babil Governorate/Governorate Center.
  - B. The community of schools and its sample: To determine the sample of schools that comprise the research sample, the researchers visited the Educational Planning Department/Statistics Division in the aforementioned directorate. The number of schools was (22). The researchers randomly selected the research sample (Nafi' Bin Hilal Intermediate School).
  - C. Student Community and Sample: Nafi' Bin Hilal Intermediate School (the final research sample

after excluding the cases) contained (96) students, distributed among three classes, with the number of students in each class ranging from (32) students, respectively. In light of the experimental design of the research, the researchers selected Class (A) by random drawing to be the first experimental group, Class (B) to be the second experimental group, and Class (C) to represent the control group. Table (1) shows this.

Table 1: Number of students in the three research groups.

Group	Before Exclusion	Fail ures	After Exclusion
First Experimental	36	4	32
Second Experimental	38	6	32
Control	39	7	32
Total	113	17	96

Fourth: Equivalence of the research groups: The researchers conducted equivalence between the three groups (the control group, and the first and second experimental groups) in a number of potential extraneous variables that are believed to have an impact on the results of the experiment and its credibility, despite the fact that the research sample was largely homogeneous, as it was selected from a similar social and economic environment, according to the following table:

Table 2: Arithmetic mean and standard deviation of the research variables.

Variable	Group	Sample Size	Mean	Standard Deviation
Chronological Age	First Experimental	32	158.25	
	Second Experimental	32	157.77	
	Control	32	157.88	
Previous Academic Achievement	First Experimental	32	65.84	
	Second Experimental	32	66.56	
	Control	32	66.31	
Raven's Intelligence Test	First Experimental	32	34.59	
	Second Experimental	32	33.50	
	Control	32	32.44	
Integrative Thinking Test	First Experimental	32	33.40	
	Second Experimental	32	32.10	
	Control	32	30.40	

Table 3: Results of one-way analysis of variance and the p-value of the research variables.

Variable	Source of Variance	df	Sum of Squares	Mean Squares	F-Value (Calculated)	F-Value (Tabular)	Significance
Chronological Age	Between Groups	2	8.5536				Not significant
	Within Groups	93	42688.1	459.01			
	Total	95	42696.65	463.2868			
Previous Academic Achievement	Between Groups	2	24.0864	12.0432	0.02848	3.09	Not significant
	Within Groups	93	39335.25	422.9597			
	Total	95	39359.3364	435.0029			
Raven's Intelligence Test	Between Groups	2	22.34		0.176	3.09	Not significant
	Within Groups	93	5904.62	–			
	Total	95	5926.96	–			
Integrative Thinking Test (for equivalence)	Between Groups	2	25.0864	13.0432	0.03048	3.09	Not significant
	Within Groups	93	40335.25	425.9597			

Fifth: Controlling Extraneous Variables: The researchers sought to limit the potential influence of variables that might threaten internal validity and affect the integrity of the experiment. Although equivalence was achieved between the groups on a number of basic variables, additional precautionary measures were taken to control the accuracy of the results. However, they also attempted to avoid the impact of some extraneous variables for which direct equivalence is difficult to fully achieve. These variables are outlined below: (experimental extinction, selection of the research sample, maturation-related processes, accompanying events, measurement tools, and experimental procedures).

#### Sixth: Research Requirements

1. Defining the Academic Material: The researchers determined the content of the material to be studied by the students in the three research groups. This material included (three chapters) from the Social Studies textbook, prescribed for the first intermediate grade, fifth edition, by the Iraqi Ministry of Education for the academic year (2024-2025), as shown in Table (4).

Table 4: Study Topics for the Experiment.

No.	Chapter	Page
1	History of Ancient Civilizations	8
2	Mesopotamian Civilization	34
3	Nile Valley Civilization	17
Total	–	59

2. Defining Historical Concepts: After reviewing the social studies material to be taught to the first intermediate grade, the researchers identified the main and secondary concepts through analyzing the scientific material. (20) main concepts were extracted and presented to a group of referees for their comments on their validity and

comprehensiveness. In light of this, some concepts were modified until an agreement rate of (82%) was achieved according to Cooper's equation.

3. Formulating Behavioral Objectives: The researchers formulated (120) behavioral objectives to measure learning outcomes, basing their formulation on the content of the study units to be taught during the experiment. These objectives covered the three levels of Bloom's Taxonomy (three levels). In order to verify their validity, their fulfillment of the content of the study material, and their representativeness, they were presented to a group of referees. In light of their opinions and suggestions, the objectives indicated by the referees as needing modification were modified and retained, while the objectives that achieved an agreement rate of (80%) or more were retained. 4. Preparing Curriculum Plans: The researchers prepared a number of (twenty-four) teaching plans that were compatible with the topics of the subject to be taught, in light of the educational content and behavioral objectives.

#### Seventh: Research Tools:

##### Historical Concepts Acquisition Test

1. Defining the Objective of the Test: The designed test seeks to measure first-year middle school students' acquisition of the historical concepts included in the (three) chapters of the Social Studies textbook, scheduled to be taught for the academic year (2024-2025).

2. Defining the Test Dimensions: The test dimensions were determined by following the processes specific to concept acquisition (knowledge, understanding, and application).

3. Formulating the Test Items: The researchers prepared (40) multiple-choice items with four alternatives, one of which was correct. Two items

were allocated for each concept to measure the specific processes of acquisition.

4. Formulating the Test Instructions: The researchers formulated them in two parts: instructions for answering and instructions for correcting the test.
5. Test Validity: Since test validity is an indicator of the ability to infer its scores and make accurate decisions, the researchers verified the availability of this characteristic in the Historical Concepts Acquisition Test as follows:
  - A. Apparent Validity: The researchers presented the test items to a group of judges to express their opinions on their suitability and the soundness of their formulation. In light of this, the items or alternatives that needed modification were modified, and an agreement rate of (80%) or greater was taken according to Cooper's agreement formula. Therefore, (40) test items were retained.
  - B. Content Validity: A list of historical concepts, their related behavioral objectives, and test items were presented to a number of judges to determine the extent to which these items represented the content of the course material (historical concepts). The test received the approval of the experts, with an agreement rate of more than (80%).
6. Test Reliability: The test was administered to a second pilot sample of (100) students from Al-Muhtadin Intermediate School for the purpose of extracting the test's psychometric properties. The researchers themselves supervised its application. Students' responses were corrected according to the answer template. Students' final scores were then arranged in descending order and divided into two groups, upper and lower, at a rate of (27) students in each group representing the two extreme groups. This was done to extract the following:
  - Difficulty Coefficient: The difficulty of each item was calculated using the difficulty equation, and it was found to range between (0.35-0.69), meaning that all remaining test items were acceptable.
  - Discrimination coefficient: After statistically analyzing the items using the item discrimination equation, it was found that all items were discriminatory, with values ranging between 0.33 and 0.56, meaning that all remaining test items were acceptable.
  - Effectiveness of alternatives: The effectiveness of each incorrect alternative for each test item was calculated. An incorrect alternative is considered effective if its discrimination coefficient is negative. The results showed that the incorrect items attracted a greater number of students from

the lower group than those from the upper group. Therefore, it was decided to keep the incorrect alternatives as they were in the test.

- Integrative Thinking Scale:
  1. Objective: To measure integrative thinking among first-year middle school students.
  2. The researchers designed a scale according to the following steps:
    - Reviewing the literature, studies, and scales: To identify the scale's domains and the process of constructing it.
    - Determining the scale's objective: To measure integrative thinking among the research sample.
    - Defining the scale's domains, items, and scoring key:
 

(Three domains) were identified for the integrative thinking scale, and its items were distributed across those domains accordingly. The scale consisted of (40) objective items. It was presented to specialists in educational and psychological sciences, teaching methods, and measurement and evaluation. Its domains and items achieved a 100% agreement rate after making minor wording adjustments. Responses were graded between (always - sometimes - rarely) with scores of (1, 2, 3), respectively.

#### **Eighth: Psychometric Properties of the Integrative Thinking Scale:**

- 1- Validity of the Scale: The researcher verified the validity of the scale in two ways:
  - A) Apparent Validity: This type of validity was achieved by presenting the scale to a number of arbitrators and specialists, who confirmed the consistency of the scale's domains and items with its purpose and title.
  - B) Construct Validity of the Test, which was achieved through:
    - Correlation Coefficient of Item Score with the Total Scale Score: The correlation coefficient of the item score with the total scale score was used to verify the existence of a correlation between the score of each item and the total scale score, using the simple Pearson correlation coefficient. The results showed that all correlation coefficients were statistically significant at a significance level of (0.05) and a degree of freedom of (0.94), as the calculated correlation value ranged between (0.24-0.63), i.e., they were all higher than (0.20), which is an indicator of the scale's validity.
    - The relationship of the scale item's score to the domain of which it is a part: To verify the existence of a correlation between the score of each item and its domain in the scale, the

researchers used the simple correlation coefficient (Pearson). The results showed that all correlation coefficients were statistically significant at a significance level of (0.05) and a degree of freedom of (0.94). The calculated correlation value ranged between (0.60-0.87), meaning they were all greater than the tabular correlation value of (0.19). Therefore, the test items are considered valid for what they were designed to measure.

- B. Scale Reliability: The scale's reliability was confirmed in two ways (retesting by applying it to a sample of (30) students from Al-Muhtadin Intermediate School and repeating it two weeks later, and Cronbach's alpha equation to measure internal consistency between the scale items). The results demonstrated the reliability of the prepared scale, indicating its objectivity and accuracy.
- Discrimination coefficient: After statistically analyzing the items using the two-tailed-groups item discrimination equation, based on a sample from the research community other than the primary research sample, numbering (100) students, and using the t-test, it was found that all items were distinct when compared to the tabular value of (2.006), as their values ranged between (2.15-6.00) at a significance level of (0.05) and a degree of freedom of (52), meaning that all items in the scale were distinct.
- D. Final Form of the Integrative Thinking Test: After completing all procedures related to the validity, reliability, and discrimination coefficient of the test items, using appropriate statistical methods, the Integrative Thinking Scale was ready for application in its final form, consisting of (40)

items.

Ninth: Statistical Methods: The researchers relied on the Statistical Package for the Social Sciences (SPSS) to analyze the results of their research.

#### Chapter Four: Presentation and Discussion of Research Results

□ Presentation of Results: The researchers present the results according to the research variables and hypothesis, as follows:

First, Presentation of the results related to the concept acquisition test:

After correcting the answers of the students in the three groups to the historical concept acquisition test, the results showed that the arithmetic mean for the first experimental group, who studied according to the "Transactional Mind Architecture Strategy," was (27.75), with a standard deviation of (3.95). The arithmetic mean for the students in the second group, who studied according to the "Safe Education Strategy," was (27.78), with a standard deviation of (4.41). Meanwhile, the arithmetic mean for the students in the control group, who studied the same subject according to the traditional method, was (23.91), with a standard deviation of (5.28). Table (5) and Figure (1) illustrate this.

Table 5: Arithmetic means and standard deviations for the three research groups for the historical concept acquisition test.

Group	Mean	Standard Deviation
First Experimental	27.75	3.95
Second Experimental	27.78	4.41
Control (Traditional Method)	23.91	5.28

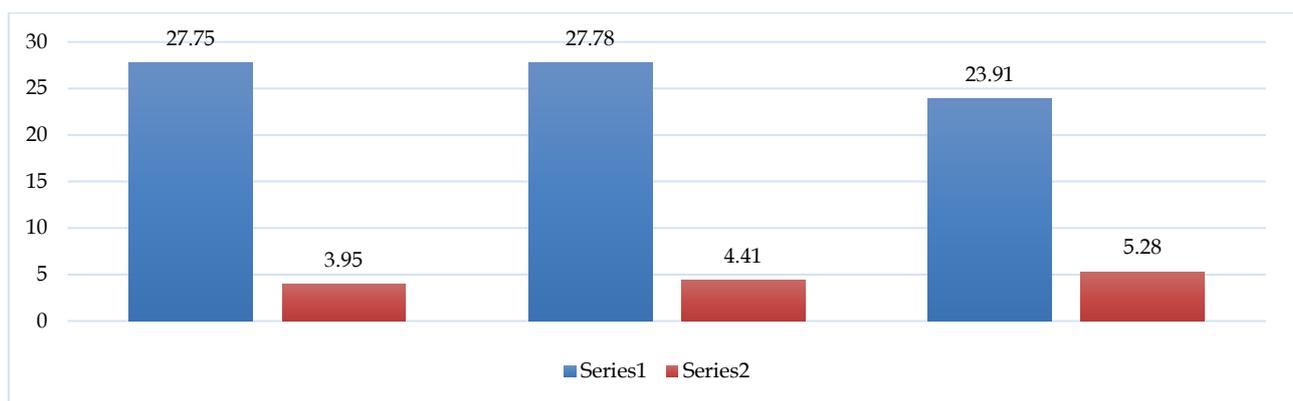


Figure 1: Arithmetic means and standard deviations for the three research groups to test the acquisition of historical concepts.

To determine the significance of the differences between the average scores of the three research groups, the researchers used a one-way analysis of variance (ANOVA). The calculated p-value was

(9.70), greater than the tabular p-value of (3.10), at a significance level of (0.05) and two degrees of freedom (2-93). The results revealed statistically significant differences in the scores of the historical

concepts acquisition test between the three research groups, as shown in Table (6).

Table 6: One-way analysis of variance for the three research groups for the historical concepts acquisition test variable.

Source of Variance	df	Sum of Squares	Mean Squares	F-Value (Calculated)	F-Value (Tabular)	Significance
Between Groups	2	909.76	454.88	9.70	3.10	Statistically Significant
Within Groups	93	4363.91	46.92			
Total	95	5273.67	—			

Since one-way analysis of variance reveals whether the differences are statistically significant, but does not determine the direction of the differences, in order to monitor the direction of the differences in the test of acquiring historical concepts among first-year middle school students in

the social studies subject, the researchers used the Scheffe test for post-test comparison between arithmetic means to determine the differences between the means and determine their direction, as shown in Table (7).

Table 7: Calculated and tabulated Scheffe values for comparing the average scores of the students in the three research groups on the test of acquiring historical concepts.

Group	Sample Size	Mean	Scheffé Value (Calculated)	Scheffé Value (Tabular)	Significance
First Experimental	32	29.78	6.25	4.26	Significant
Control	32	23.53			
Second Experimental	32	30.31	6.78	—	Significant
Control	32	23.53			
First Experimental	32	29.78	0.53	—	Not Significant
Second Experimental	32	30.31	—	—	

### Comparison between the first experimental group and the control group:

The average score of the first experimental group, which studied using the (Transactional Mind Architecture) strategy, as shown in Table (7), was (29.78), while the average score of the control group whose students studied using the traditional method, was (23.53). When testing the significance of the differences using the (Scheffe) method, it appeared that the differences were statistically significant at the (0.05) level between the averages of the two groups, in favor of the first experimental group. The (calculated) Scheffe value reached (6.25), which is greater than the critical table value of (4.26). Therefore, we reject the first null hypothesis, which states that (there are no statistically significant differences at the (0.05) level between the average scores of the control group students who studied according to the (Transactional Mind Architecture) strategy, and the average scores of the students who studied using the traditional method in the test of acquiring historical concepts.

### 2. Comparison between the second experimental group and the control group:

The average score of the second experimental group, which studied using the (Education (safe)), as in Table (7), (30.31), while the average score of the control group, whose students studied using the traditional method, was (23.53). When testing the significance of the differences using the (Scheffe)

method, it appeared that the differences were statistically significant at the (0.05) level between the averages of the two groups, in favor of the second experimental group, as the (calculated) Scheffe value reached (6.78), which is greater than the critical table value of (4.26). Therefore, we reject the second null hypothesis, which states that (there are no statistically significant differences at the (0.05) level between the average scores of students who study according to the (safe learning) strategy, and the average scores of students of the control group who study using the traditional method in the test of acquiring historical concepts.

### 3. Comparison between the first experimental group and the second experimental group:

The average score of the first experimental group, which studied using the (reciprocal mind architecture) strategy, as in Table (7),

was (29.78), while the average score of the second experimental group, whose students studied using The (Safe Learning) strategy reached (30.31). When testing the significance of the differences using the (Scheffe) method, it appeared that the differences were not statistically significant at the (0.05) level between the averages of the two groups, as the (calculated) Scheffe value reached (0.53), which is smaller than the critical tabular value of (4.26). Thus, the third null hypothesis is accepted, which states that (there are no statistically significant differences at the (0.05) level between the average scores of

students studying according to the (Reciprocal Mind Architecture) strategy, and the average scores of students in the second experimental group studying according to the (Safe Learning) strategy in the historical concepts acquisition test.

Second. Presentation of the results related to the integrative thinking scale:

After correcting the answers of the students in the three groups on the integrative thinking scale, it appeared that the arithmetic mean of the first experimental group who studied according to the "Reciprocal Mind Architecture" strategy reached (32.81), with a standard deviation of (5.72), while the arithmetic mean of the scores of students in the second group who studied the same subject according to the "Safe learning strategy" (32.19), with a standard deviation of (4.72), while the arithmetic mean of the scores of the students in the control group who studied the same subject according to the usual method was (26.84), with a

standard deviation of (6.03), and Table (8) and Figure (2) illustrate this.

To determine the significance of the differences between the average scores of the three research groups, the researchers used a one-way ANOVA. The calculated p-value was (10.94), which is greater than the tabular p-value of (3.10), at a significance level of (0.05) and two degrees of freedom of (2.93). The results revealed statistically significant differences in the scores of the (Integrative Thinking) scale between the three research groups, as shown in Table (9).

Table 8: Arithmetic means and standard deviations for the three research groups for the Integrative Thinking Test.

Group	Mean	Standard Deviation
First Experimental	32.81	5.72
Second Experimental	32.19	4.72
Control (Traditional Method)	26.84	6.03

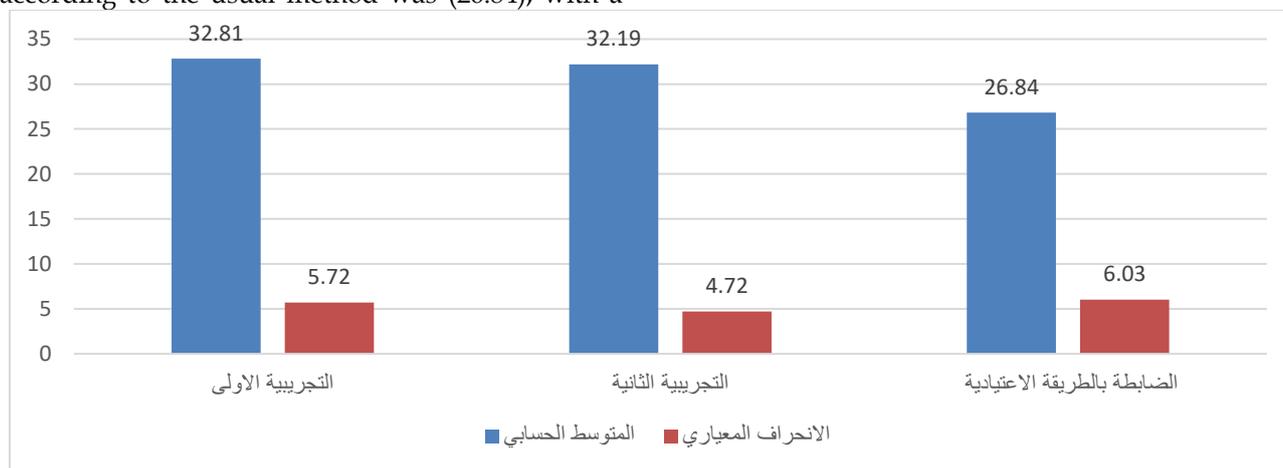


Figure 2: Arithmetic means and standard deviations for the three research groups for the integrative thinking test.

Table 9: One-way analysis of variance for the three research groups for the variable of the integrative thinking test.

Source of Variance	df	Sum of Squares	Mean Squares	F-Value (Calculated)	F-Value (Tabular)	Significance
Between Groups	2	688.74	344.37	10.94	3.10	Statistically Significant
Within Groups	93	2928.34	31.49			
Total	95	3617.08	—			

1. Comparison between the first experimental group and the control group on the integrative thinking scale:

The average score of the first experimental group, which studied using the (Transactional Mind Architecture) strategy, as shown in Table (8), was (32.812), while the average score of the control group, whose students studied using the traditional method, was (26.843). When testing the significance of the differences using the (Scheffe) method, it appeared that the differences were statistically significant at the (0.05) level between the averages of

the two groups, in favor of the first experimental group. The (calculated) Scheffe value reached (5.968), which is greater than the critical table value of (3.478). Therefore, we reject the fourth null hypothesis, which states that (there are no statistically significant differences at the (0.05) level between the average scores of the control group students who studied according to the (Transactional Mind Architecture) strategy, and the average scores of the students who studied using the traditional method on the integrative thinking test.

2. Comparison between the second experimental group and the control group on the integrative thinking scale:

The average score of the second experimental group, which studied using the "Safe Learning" strategy, as shown in Table (10), was (32.187), while the average score of the control group, whose students studied using the traditional method, was (26.843). When testing the significance of the differences using the "Scheffe" method, it appeared that the differences were statistically significant at the (0.05) level between the averages of the two groups, in favor of the second experimental group. The calculated Scheffe value reached (5.343), which is greater than the critical tabular value of (3.487). Therefore, we reject the fifth null hypothesis, which states that "there are no statistically significant differences at the (0.05) level between the average scores of students studying according to the "Safe Learning" strategy and the average scores of students in the control group who studied using the traditional method in the integrated thinking test."

3. Comparison between the first experimental group

and the second experimental group in the integrated thinking scale:

The average score of the first experimental group, which studied using the "Reciprocal Mind Architecture" strategy, was as shown in Table (10). (10), (32.812), while the average score of the second experimental group, whose students studied using the (secure learning) strategy, reached (32.187). When testing the significance of the differences using the (Scheffe) method, it appeared that the differences were not statistically significant at the (0.05) level between the averages of the two groups, as the (calculated) Scheffe value reached (0.625), which is smaller than the critical tabular value of (3.487). Therefore, we accept the sixth null hypothesis, which states that (there are no statistically significant differences at the (0.05) level between the average scores of students who study according to the (transactional mind architecture) strategy, and the average scores of students in the second experimental group who study using the (secure learning) strategy in the integrative thinking test.

Table 10: Calculated and tabular Scheffe values to compare the average scores of students in the three groups in integrative thinking.

Group	Sample Size	Mean	Scheffé Value (Calculated)	Scheffé Value (Tabular)	Significance
First Experimental	32	32.812	5.968	3.487	Significant
Control	32	26.843	—	—	—
Second Experimental	32	32.187	5.343	—	Significant
Control	32	26.843	—	—	—
First Experimental	32	32.812	0.625	—	Not Significant
Second Experimental	32	32.187	—	—	—

Second: Interpretation of the results: In light of the results obtained, they can be interpreted as follows:

1- Acquisition of historical concepts:

The results showed that students in the two experimental groups, the first of which used the "Reciprocal Mind Architecture" strategy, and the second of which studied using the "Safe Learning" strategy, outperformed students in the control group, which studied using the traditional method for testing historical concepts. This is attributed to:

- 1- "Organizing the historical material and presenting it in ways that are consistent with the cognitive constructivist nature.
2. Providing a safe learning environment and an appropriate educational atmosphere.
3. The "Reciprocal Mind Architecture" strategy and the "Safe Learning" strategy are compatible with students' different mental abilities.
4. The exchange of roles between teacher and

student, and between students themselves and their interactions, contributed to making students an active focus within the classroom.

5. Student participation in historical discussions, by creating a safe learning environment, gained self-confidence and, consequently, helped them acquire historical concepts.

B. The results showed that there were no statistically significant differences between students in the two experimental groups (the first with whom the "Reciprocal Mind Architecture" strategy was used) and the second, whose students were taught using the "Safe Learning" strategy. This is attributed to the fact that both groups emphasize the positive role of the student, considering them the focus of the educational process. Furthermore, the teacher's role in both groups, which was stimulating and facilitating the teaching process, as well as the sequential and gradual organization of teaching steps, made students feel self-confident, which contributed to

organizing their ideas and information to acquire historical concepts.

## 2- Integrative Thinking:

The results showed that students in the first and second experimental groups outperformed students in the first group using the "Reciprocal Mind Architecture" strategy, and the second group, whose students studied using the "Safe Learning" strategy, compared the control group, whose students studied using the traditional method of integrative thinking scale.

### Third: Conclusions:

1. The superiority of the two experimental groups is attributed to the effectiveness of the "Reciprocal Mind Architecture" and "Safe Learning" strategies in organizing and presenting the historical material in the first-year middle school social studies textbook in ways that are consistent with the constructivist nature of knowledge by linking it to new and previous historical concepts, which deepened the learners' understanding and acquisition processes.
2. The two strategies contributed to shifting the center of gravity in the educational process from the teacher to the students, enhancing their positive participation, stimulating their motivation to learn, and making them an active focus within the classroom.
3. The two strategies took into account individual differences among students by organizing work in cooperative groups, which helped foster a sense of individual and collective responsibility.
4. The two strategies used by the researchers helped raise the level of integrative thinking among first-year middle school students in social studies. Fourth: Recommendations:

1. Hold training workshops based on educational

design for classroom activities that adopt knowledge exchange and discussion management, and train students to ask creative questions.

2. Urge the School Supplies Directorate to provide schools with cardboard, colored pencils, and projectors to enhance teamwork.
3. Urge educational decision-makers to increase the number of social studies classes in middle school, and to increase the number of topics that require deep, integrative thinking and discussion, rather than focusing on the narration of historical facts.
4. Conduct training courses to develop teachers' skills in interacting with intermediate students in order to create a safe learning environment by encouraging open dialogue, accepting students' mistakes as part of teaching and learning, and working to instill confidence in them.
5. Include content, activities, and educational situations in intermediate social studies textbooks that stimulate different types of thinking, including integrative thinking.

### Fifth: Suggestions:

1. Conduct a similar study to examine the impact of the two strategies on dependent variables such as different types of thinking, attitudes, and skills.
2. Conduct a similar study to examine the impact of the two strategies on other educational levels, such as primary and secondary schools, in other subjects, and with additional demographic variables such as gender, to deepen understanding of the impact of the two strategies in the current research across different contexts.
3. Hold training workshops for intermediate social studies teachers to integrate thinking skills, including integrative thinking, into their teaching of students.

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