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The Impact of a Proposed Strategy Based on Matthew Lipman's Cognitive Theory in Teaching "Testing" on EFL University Students' Performance

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A B S T R A C T

The current study aims to propose a strategy based on Matthew Lipman's cognitive theory and explain its effectiveness on the achievement of fourth-stage EFL students in the subject of testing. The proposed strategy has been applied on a sample of 100 male and female students in the Department of English, distributed into two groups. The first experimental group is taught testing by using the proposed cognitive strategy, while the second control group is taught the same subject by using the conventional method. The obtained result indicates that experimental group students, who have been taught by using the proposed cognitive strategy based on Matthew Lipman's theory, outperformed the control group students, who have been taught by using the conventional method. Therefore, the alternative hypothesis is accepted, stating that there is a statistically significant difference between the average scores of the experimental and control groups achievement in testing, and in favour of the experimental group. The effectiveness of the proposed cognitive strategy is attributed to the engagement of the students' minds and the arbitration of knowledge to achieve a deeper understanding of the studied subject. The effective role of the mental trial for the experimental group in the cognitive, emotional, psychomotor aspects. The study stressed the need to employ learning theories in the field of teaching, especially cognitive theories.

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أثر استراتيجية معرفية مقترحة مبنية على النظرية المعرفية لماثيو ليبمان في تدريس مادة الاختبارات على أداء طلبة اللغة الانكليزية لغة اجنبية في المرحلة الجامعية

جوهر برك مطر/ جامعة تكريت/ كلية التربية للعلوم الانسانية

الخلاصة:

تهدف الدراسة الحالية إلى اقتراح استراتيجية معرفية تستند إلى النظرية المعرفية لماثيو ليبمان وبيان فعاليتها في تحصيل طلبة المرحلة الرابعة في قسم اللغة الإنجليزية لغة أجنبية في مادة الاختبارات وقد تم تطبيق الاستراتيجية المعرفية المقترحة على عينة مكونة من ١٠٠ طالبٍ وطالبةٍ في قسم اللغة الإنكليزية، اذ تم توزيعهم إلى مجموعتين وتم تدريس المجموعة التجريبية الأولى مادة الاختبارات باستعمال الاستراتيجية المعرفية المقترحة، في حين تم تدريس المجموعة الضابطة الثانية المادة نفسها باستعمال الطريقة التقليدية. واشارت النتائج إلى أن طلبة المجموعة التجريبية الذين تم تدريسهم باستعمال الاستراتيجية المعرفية المقترحة بناءً على نظرية ليبمان تفوقوا على طلبة المجموعة الضابطة الذين تم تدريسهم بالطريقة التقليدية، وبالتالي تم قبول الفرضية البديلة التي تنص على وجود فرق ذي دلالة إحصائية بين متوسط درجات تحصيل المجموعتين التجريبية والضابطة في مادة الاختبارات لصالح المجموعة التجريبية، ويعود تأثير الاستراتيجية المعرفية المقترحة إلى تفعيل عقول الطلبة وتنظيم المعرفة لتحقيق فهم أعمق للمادة الدراسية، وتُبرِز الدراسة الاثر الفعّال للتجربة العقلية للمجموعة التجريبية في الجوانب المعرفية، والعاطفية، والحركية النفسية، وأكدت كذلك على ضرورة توظيف نظريات التعلم في مجال التدريس، وخاصة النظريات المعرفية.

الكلمات المفتاحية: الأثر، الاستراتيجية المعرفية المقترحة، النظرية المعرفية لماثيو ليبمان، أداء الطلبة، الاختبارات

Section One: Introduction

1.1 Statement of the Problem:

Anderson (2015) states that in light of the scientific and technological changes, the process of teaching the student how to think is considered one of the basics on which education is based, and how to deal with the information and knowledge that he benefits from in the field of subject of study. Moreover, college faculty insist on the need to update the teaching methods and move towards thinking and its types to keep pace with everything new and deliver the learner to the skill of obtaining self-information and through the teaching method that improve his thinking.

Some local conferences also recommended reforming the education process and using modern strategies in teaching. In order to avoid this imbalance in teaching, these conferences stressed the need to pay attention to the student and strategies for delivering information to the student, to keep pace with the

requirements of the era. Among these conferences are the Third National Educational Scientific Conference (Teachers' Syndicate, General Center in Baghdad, Iraq, 2002), the Sixth International Scientific Conference held at the University of Mosul/ College of Basic Education (5-6/May/2013) and the conference held at the College of Education/ Ibn Rushd/ University of Baghdad (24/October/2016). In addition to descriptive studies such as, the study of Al-Baharat, 2021, which stressed the need to prepare students and human cadres that keep pace with the development and progress taking place scientifically, technologically and intellectually.

Therefore, the problem of the current study could be identified in the following question: What is the effectiveness of the proposed strategy based on Matthew Lipman's cognitive theory in teaching testing to the fourth year EFL college students

1.2 Importance of the Study:

In order to prepare students who have the ability to keep pace with development and progress and are qualified to face the challenges of the times, it is necessary to have an educational process aimed at preparing individuals intellectually and socially for the purpose of contributing to the development of society. Therefore, it is an individual and social necessity, which at the same time represents an important means of production, and the individual and society cannot do without it. Taking care of thinking expresses the need for contemporary societies to increase and develop their human wealth. Many scientists and those interested in this field believe that thinking is an essential process in all fields of life because it represents a complex behaviour that is specific to human being from all other creatures in dealing with the different life situations that he faces during his life. It helps to enable the individual to acquire knowledge and information. Thus, developing his behaviour patterns to solve the problems he encounters and make the right decisions towards them (Baron, 2008).

Scientists and educators have adopted the design of modern sophisticated strategies, for the purpose of helping to understand the impact of this development, and they have worked to make these educational designs more suitable for the modern era to address knowledge that has begun to require more advanced educational strategies and designs. Educational institution also plays a major role in the development of thinking if it guides its students well and helps them realize the problems that surround them, and work to solve them with all their energies (Nisbett, 2003).

Hence, thinking helps the individual to anticipate future problems and predict possible solutions to many of the problems facing him, in addition to helping to discover ourselves, our resources and energies. Thinking is useful in achieving rapid comprehensive development, as it is the first step towards positive participation in making of the future, as well as leading to providing a solid knowledge base (Nickerson, 2004).

Matthew Lipman's theory is the formation of visions and considerations based on the ethical approach established by Piaget and then Kohlberg, who made the learner his starting point through the positive role in evaluating and developing his moral thinking instead of providing the learner with completed rules and behaviours. So it contains things such as, making decisions and learning good concepts based on a certain standard and a scientific source for the purpose of correcting and evaluating them, thus being more general and comprehensive. As for wisdom, Lipman has explained that wise people are those who practise good mental judgment (Lipman, 1998).

The importance of cognitive theory lies in the role of the teacher, who will employ this theory in the positive role of him to develop the thinking of his students instead of providing them with scientific rules. As well as his counseling, guidance and therapeutic role to reach scientific knowledge among his students, and enlighten them about the link between what they study in multiple educational situations and what they face in different life situations. Finally, teachers help and encourage the development of students' personalities to make the right decisions about the situations they may face (Mercier, 2016).

1.3 Aims of the Study:

This study aims at:

1. Constructing a strategy based on Matthew Lipman's cognitive theory.
2. Finding its impact on the achievement of the fourth-year EFL students in the subject of testing.

1.4 Hypothesis of the Study:

The following null hypothesis has been posited:

There is no significant difference between the mean scores of the experimental group’s achievement and that of the control group’s achievement in the achievement test.

1.5 Limits of the Study:

This Study is limited to the EFL fourth year college students at the College of Education for Humanities who are studying "testing" during the academic year 2023-2024.

1.6 Operational Definition of Basic Terms:

1.6.1 Proposed Cognitive Strategy:

It is a developed teaching strategy derived from Matthew Lipman's cognitive theory that educational lessons are given according to it and aims to activate knowledge. It consists of a set of steps constructed according to the cognitive skills of Matthew Lipman's cognitive theory.

1.6.2 Lipman's Theory:

It is a theory that designed to enhance the cognitive ability for the fourth year students, including critical thinking, problem-solving, and logical analysis, by engaging them in philosophical discussions that relate to real-life situations. It helps students develop the ability to think independently, evaluate arguments, and make reasoned decisions.

1.6.3 Students' Performance:

The behaviour of the fourth year students as a result of the knowledge they have acquired due to the proposed strategy based on Matthew Lipman's cognitive theory to improve their performance.

1.6.4 Testing:

A subject aimed at teaching the fourth-year students how to measure and evaluate students' academic performance using tools such as, tests and questionnaires. The subject focuses on the concepts of validity and reliability in measurement, and the application of evaluation results to improve education.

Section Two: Theoretical Background

2.1 Matthew Lipman's Theory (1998)

Lipman (1988) believes that mental trial is of particular importance as it is a practice that is concerned with the measures, causes and behaviours taken by an

individual. this theory focuses on psychological personal education that teaches the individual how to organize his psychological experiences and what individuals are expected to gain from experience during the situations they go through to benefit from their experiences. In addition, it is a set of mental and associative relationships through which the individual accesses the information and applies it within the field in which he employs it through the difference between the information and its counterpart or the similarity in the parts of that information.

Lipman stresses that relationships with others must be constructed according to the life experiences that the individual goes through, and expresses his opinion on them to reach a mental judgment that the learner can store in long-term memory and can return when he needs it. Everything that falls under the term mental trial is only relationships, that is, comparing mental trials with other aspects of the individual's mind (Lipman, 1998).

According to the vision of Cattell (1971), Eysenck and Eysenck (1985) and Goldberg (1990), mental trials are divided into the following types:

First: Holistic mental trial: It includes:

-Similar mental trials: mental processes by which the individual moves from one thing to another, and the more the similarities increase, the closer they approach identicalness. It is expressed in language such as, equal to, like, or completely.

-Mental trial based on difference: it can be reached to the goal and the required information because of that difference and mismatch.

Second: Mental trials based on fragmentation: It includes:

1. Partitioning: Division of the problem or idea into smaller, more manageable parts, allowing each part to be addressed individually and thus facilitating access to innovative solutions.
2. Restructuring: Analyze and arrange the constituent parts of a problem or idea differently, which can lead to seeing things from a new perspective that generates unexpected solutions.
3. Focused Brainstorming: Focus on one element of the problem or idea and try to explore all aspects of that element before moving on to the others, this allowing for greater depth in the analysis.

4. Contrast and similarity: Seek for similarities and differences between the constituent parts of an idea or problem, which helping identify relationships and patterns that may not be apparent.

Third: Mental trials based on measurability:

It involves moving from the general to the specific, from the whole to the part, and it is an instructional approach on which some methods and techniques are based.

Fourth: Mental trials based on reasons:

These trials are used to stimulate logical and creative thinking, helping individuals to have a deeper understanding of the processes and reasons behind the outcomes, and thus make more informed decisions. These trials include: cause-and-effect analysis, causal sequential analysis, reverse thinking and alternative analysis.

Fifth: Mental trials based on practice:

These trials focus on turning ideas into action, fostering deeper understanding and leading to continuous improvement in performance and abilities. These trials include: experience and error, practicality, modeling and simulation, and repeat and review.

Sixth: Mental trials based on translation:

It is the process of converting mental ideas, information and words into elements with meanings, spoken ideas, movements, speech, gestures, etc. to deliver them to others while preserving the origins of those words, while translation takes different forms such as, conversion from symbolic images to verbal and vice versa, reformulating some concepts, narrating an event, or translating a literary story from one language into another.

2.2 Cognitive Thinking Skills as Classified by Matthew Lipman

Lipman (1998) classifies the cognitive thinking skills, as follows:

1. Deep analysis: It means researching the roots of phenomena and ideas to obtain behavioural performance verbally or practically and, according to Chomsky's superficial and deep vision.

2. Inferences: It refers to how the mind is used to link existing information to reach conclusions based on available evidence or information that leads to an optimal solution.
3. Creativity and perception: It means finding new and original solutions and ideas in which the flexibility is compatible with educational events and situations.
4. Effective communication: It is the process of interaction with information by the students themselves and the professor in verbal or gestural forms and access to meaning and full understanding.
5. Structured thinking: It means the set of consequential and organized relationships that contribute to constructing the learner's knowledge.

2.3 Factors Affecting Thinking Styles According to Modern Cognitive Theory

Sternberg (1997) and Nisbett, et al. (2001) state that according to modern epistemology, there are several factors that influence the thinking styles of individuals. Those factors include:

1. Personal experiences: Past experiences significantly influence how information is processed and decisions are made.
2. Learning environment: The environment in which an individual learns, including teaching methods and available resources, plays an important role in shaping thinking styles.
3. Mental abilities: Innate intelligence and diverse mental abilities such as, memory and attention affect how an individual thinks and solves problems.
4. Motivation and interest: The extent to which an individual is interested in the subject and is motivated to learn or solve a problem can affect the quality and depth of thinking.
5. Cultural and social factors: Cultural values and social beliefs can influence an individual's ways of thinking.
6. Emotional state: Feelings and emotions such as, anxiety or confidence can affect the ability to think clearly and make decisions.
7. Technology and media: Exposure to technology and media can affect how information is received and processed.
8. Training and education: Continuous training and education help develop more complex and effective thinking styles.

These factors interact with each other to shape individuals' thinking styles, making the thought process complex and multidimensional.

2.4 Features of Mental Trials

Mischel (1968) and McCrae and Costa (2003) mention that mental trials have several features aimed at developing the thinking abilities of individuals, as it:

1. focuses on developing the ability to think critically, allowing students to analyze information in depth and evaluate arguments logically.
2. encourages students to deconstruct ideas and concepts into their core components to better understand them, enhancing the ability to logically analyze.
3. helps promote independence of thinking in students, as they learn how to draw their own conclusions based on available evidence.
4. depends on open dialogue between students, which encourages the exchange of ideas and respect for different points of view, and helps construct a collaborative learning community.
5. includes various reasoning skills such as, induction and deduction, which help students develop a greater ability to use logic in problem solving.
6. enhances the ability to apply theoretical knowledge in practical situations, helping to transform ideas into actionable actions.
7. encourages creative thinking by seeking new and unconventional solutions to problems.

2.5 The Role of the Teacher and the Learner in the Proposed Cognitive Strategy

2.5.1 The Role of the Teacher

Zimmerman (2002) explains the role of the teacher, as follows:

1. Develop students' thinking instead of providing them with scientific bases.
2. Explaining the link between what students' study in multiple educational situations and what they face in different life situations.
3. Encouraging the development of students' personalities in all its aspects towards the situations they are exposed to.

2.5.2 The Role of the Learner

Pressley & Harris (2006) identify the role of the learner, as follows:

1. The active and effective learner is the centre of the educational process through discussion, reasoning and linking with the opinions of his colleagues leading to the conclusion of the correct solutions.
2. Deep analysis that leads the learner to reasoning, interaction and full understanding of information.
3. Students have an active role in developing their cognitive abilities that they infer information and make judgments about it.

2.6 Learning and Cognitive Trial According to the Proposed Cognitive Strategy Based on Matthew Lipman's Theory

Mental trial in its simplest form is the works of the human mind. The combined activity between students and their teachers and their role as implementers of the educational process leads the students to establish an educational mechanism that helps to manage that process to form an educated personality through which they seek to assume the responsibility entrusted to them. Mental trial is an educational tool that enables students to verify the validity of information by reference to a fixed standard based on a reliable scientific source (Siegler & Alibali (2005). In addition, it helps them evaluate their knowledge based on the mental skills that make them judge those logical values, so it focuses on the mental standards adopted by learners. There is a suggestion that would develop the mental trial of students, which is: activating the interactive role of students' mental activities to develop their abilities to pay attention to scientific thinking that allows to make appropriate decisions in any educational situation.

2.7 Stages of Mental Trial According to the Vision of Matthew Lipman

Accorging to Lipman (1998) there are many stages that aim to enhance students' critical and creative thinking, as follows:

1. Cognition: The student recognizes the problem or idea and begins to analyze it.
2. Analysis: disassembling the problem into its basic components and studying each one of them separately.
3. Critical thinking: evaluating information and arguments related to the problem, with the aim of reaching logical conclusions.
4. Heuristics: Using logic to draw conclusions or solutions based on available evidence.
5. Dialogue: Sharing ideas with others to enhance understanding and broaden the scope of thinking.

6. Evaluation: Review and validate results based on objective evidence and criteria.

These stages reflect a holistic approach to developing critical and deep thinking in learners, as they are gradually guided from the initial understanding of the problem to reaching logical and thoughtful solutions.

Section Three: Methodology

3.1 Experimental Design

The experimental design is a design that allows a researcher to study the effect of one or more independent variables on one or more dependent variables, with determining the effect of other variables. The choice of experimental design depends on the nature of the research problem, the objectives of the study, and the number and types of variables. It is known that educational research has not reached an experimental design that reaches the point of perfection due to the complex nature of human phenomena (Campbell and Stanley,1963).

The experimental design of the study is called "The Posttest-Only Equivalent Group Design", as shown in table (1):

Table (1) The Experimental Design of the Current Study

Group	Dependent Variable	Independent Variable
Experimental	Proposed Cognitive Strategy	Students' Achievement
Control	Conventional Method	Students' Achievement

The experimental group is the group whose members are subject to the independent variable (the proposed cognitive strategy based on Matthew Lipman's cognitive theory). The independent variable is the variable that a researcher changes in an experiment to observe its effect on the dependent variable.

3.2 Population and Sampling

Population is the total set of elements that the researcher seeks to generalize the results related to the problem studied. In educational research, the population is a group of people who possess certain characteristics or traits (Creswell, 2014).

The population of the current study includes all the fourth-year college students at the departments of English /College of Education at the University of Tikrit whose total number is (200). The Department of English at the College of Education for Humanities is randomly selected to be the sample of the study. The total number of the EFL fourth-year students is (100) who represent (5٠%) of their original population. The sample is divided equally into two groups, experimental and control. The experimental group receives instruction according to the proposed cognitive strategy, while the control group is taught according to the conventional method.

3.3 Justification for Constructing the Proposed Cognitive Strategy

When constructing a proposed cognitive strategy, it is necessary to mention the justifications for construction. Slavin (2018) states that the following points indicate the justifications behind constructing the proposed cognitive strategy:

1. The needs, abilities and tendencies of students in addition to the developments and changes in the world.
2. The vocabulary of the academic content and the way it is organized and diversified to facilitate learning and understanding the material.

3.4 Procedures for Constructing the Proposed Cognitive Strategy

After reviewing the educational resources and previous studies that included constructing educational programmes, a final version of the stages of constructing the proposed cognitive strategy is reached, this is done in three stages, as follows:

First: Planning Stage:

At this stage, information is collected, analyzed and explained in order to reveal the basic paths that should be focused on by the designer of strategy. Bryson, (2018) states that this stage includes the following steps:

1. Reviewing and studying previous strategies: The researcher reviewed some of the proposed strategies obtained from the literature and previous studies that dealt with the proposed strategies for the preparation of students, for benefiting from it in the construction of the proposed strategy. The researcher has taken the opinion of specialists in educational and psychological sciences when developing a mechanism for preparing the

proposed strategy according to appropriate educational and psychological foundations.

2. Identifying the justifications of the strategy: The justifications of the strategy are as follows:
   a. The presence of indicators indicating the lack of knowledge of some of the students of the processes of the mind and mental trials.
   b. The lack of interest among students in thinking and developing their skills.
3. Identify the logical and psychological philosophical foundations and principles of the strategy: In order to achieve the objectives of the proposed strategy, some foundations must be identified, as follows:
   a. Objectives of learning testing
   b. Determine cognitive levels for students
   c. Formulate general and behavioural objectives at the beginning of the proposed strategy
   d. Identify, organize, and evaluate the analyzed educational content according to the educational objectives, characteristics of the students, and their mental level
   e. Diversify educational activities taking into account the individual differences among students.
   f. The flexibility of the proposed strategy which allows for change, modification, enrichment and development of any of its elements
4. Determining the educational environment: The educational environment is a crucial and influential factor in the outcomes of education and teaching as well as, the interaction between students' needs and the conditions of the surrounding environment is an important factor in explaining the student's educational behaviour. The elements of the educational environment are as follows:
   a. Physical environment: It is represented by the classroom, lighting and good ventilation and the arrangement of seats in a way that gives students comfort and freedom, to integrate into the educational environment without distracting their attention.
   b. Psychological environment: It is represented by the classroom psychosocial and emotional environment, which affects student learning, such as collaborative work among students in the classroom, and mutual respect.
5. Identifying the target group: The target group is the group to which teaching will be directed. The group is usually described by age, gender and academic

level, and the researcher identified the fourth year students as a sample of the current study.

6. Constructing: It is to develop the basic and structural formula in which the elements of the proposed strategy are organized in a series of steps, namely:
   a. Identifying the objectives of the strategy: It is divided into the following:
      - General Objectives: They are the results that the learner shows after learning a learning unit or curriculum in a period of time not less than two weeks and not more than an academic year. Setting goals helps in selecting and organizing educational content in a way consistent with students' readiness, motivations, and abilities, and choosing appropriate teaching methods to achieve the objectives, and appropriate evaluation methods to measure them, and without them, the elements of the strategy lose consistency and clarity.

        After reviewing the sources related to the formulation of the general objectives of the educational strategy, the general objectives have been formulated and then exposed to the experts and specialists in curricula and teaching methods, and the modification is made in the light of their observations and opinions after which the objectives are finalized and included in the proposed cognitive strategy.
      - Behavioural objectives: They are learning goals that describe what the learner is expected to do after the learning process is over, whereby these goals are measurable and observable, and aim to guide the educational process towards achieving specific and clear results.

   b. Selection of educational content: Selection of content is linked to the objectives that the strategy seeks to achieve. Content is a set of information, facts, concepts, values, attitudes, beliefs and skills directed to the trainee with the intention of modifying his behaviour with its cognitive, emotional and skill aspects.

   c. Identifying strategies: Identifying an education strategy is a crucial element, as it is closely related to objectives and content. The proposed cognitive strategy, based on Matthew Lipman's cognitive theory, will be the means by which the researcher works and observes its effect on students' achievement.

   d. Identifying activities: The researcher adopted a number of activities for each of the topics of the strategy in proportion to its objectives, the activities are, as follows:

- Introductory activities: are the practices that students are assigned to before starting educational lessons, and they perform them individually as homework.
- Structural activities: are the practices performed by students during teaching.
- Closing activities: are the activities that students are assigned to before completing each lesson of practical application

e. Teaching aids: They are set of tools, materials, and educational devices used by the students, which help to conduct effective teaching with less effort, time, and cheaper cost, as well as an interesting atmosphere, and a desire for better educational lessons. These teaching aids are part of the planned practical work. The researcher is keen to use a variety of means, including: the computer (laptop), diagrams and photos.

f. Instructional Material and Students' Instruction: The instructional material includes five topics, namely: basic assessment concepts, characteristics of assessment, test design, test reading comprehension, and test writing. These topics have been taught to the two groups of the study for a period of fourteen weeks

g. Evaluation: It is the process that the student performs to judge the progress of the proposed strategy and achieve the desired goals. It is also a process of diagnosis, treatment and prevention. Accordingly, the researcher depends on three types of evaluation:

- Introductory evaluation: which is made at the beginning of the proposed strategy.
- Formative evaluation: It is done through self-evaluation of students as well as external evaluation by the researcher.
- Final evaluation: It is done after the completion of the educational lessons and after the students reach the required level.

Second: Design and Implementation of Educational Lessons:

This stage includes some procedures and how to adopt Lipman's theory in the design of educational lessons. The material has been presented according to the proposed steps and deduced from the mental skills of the theory, which has been shown in the theoretical framework and operational definition. Lipman (2003) states that these procedures are, as follows:

1. Managing lessons according to specific steps based on Matthew Lipman's cognitive theory.

2. Taking into account the availability of educational situations in each lesson by linking lessons to students' experiences.
3. Organizing lessons according to creative solution skills.
4. Providing the appropriate educational environment.
5. Providing enrichment resources.
6. Organization of the schedule of educational lessons.

Third: Evaluation Stage:

Evaluation is an essential part of all processes and tasks that are performed in the educational process. This is due to its importance in determining what is achieved from the desired educational goals, which reflect positively on the performance of students (Scriven, 1991).

Evaluation plays an active role in the success of the educational process by bringing about balance and integration between its various elements, and by modifying, adapting or correcting it in the light of the available data and information. **(**Stufflebeam & Shinkfield, 2007).

Two methods of evaluation are used in the proposed cognitive strategy, as follows:

1. Formative Evaluation: This type of evaluation is used during and after teaching each of the topics. It aims to discover and reinforce the positives and negatives in students through (oral questions), and mutual exploratory dialogue, between the teacher and students.

2. Summative evaluation: This type of evaluation is used after the educational process has ended. It aims to determine the extent to which objectives have been achieved and is typically conducted at the end of a semester or after completing practical application. It provides a foundation for assigning grades or documenting student data fairly, which can then be used to prepare reports and student certificates. Summative evaluation in the current study is represented by the achievement test that will be applied after the experiment to measure the effectiveness of the proposed cognitive strategy.

3.5 Instrument of the Study

3.5.1 Achievement Test

These steps are followed for the constructing of the achievement test:

a. Determine the aim of the test

The aim of the test is to reveal the achievement of the research sample in the knowledge. This test must be clear and measurable based on the curriculum.

b. Preparation of the initial version of the test

The test includes three questions with twenty-eight items. Ten multiple choice items and ten fill in the blanks items and each one of these items is given one mark for the correct answer and zero for the wrong answer. In addition to that, there are eight essay items, each item has five marks. The procedure of answering the test paragraphs has been clarified and setting a standard for test correction.

c. Validity of the test

Anderson and Arsenault (1998) state that validity refers to what degree the test measures what it is designed to measure, it is measured by the purpose for which the test is construct. The validity of the test is confirmed by exposing the test in its initial form to a group of specialists in the field of educational psychology and teaching methods, to express their opinions about the test and based on their observations was reformulated some paragraphs thus, remained all paragraphs of the test. The validity of the test has been confirmed.

d. Pilot study

In order to verify the clarity of the instructions for answering the test questions, and the extent to which the trainees understand the answer alternatives. The test has been applied to a pilot sample consisting of fifty male and female students and asked them to give their observations on any item of the test, as well as inquiring about any phrase they find vague or incomprehensible. Students' questions and inquiries were recorded, and some notes related to the test items and instructions. Results indicate that the test instructions and items are clear and the time taken to answer it range between forty-five to fifty minutes.

e. Statistical analysis of the test items

After verifying the clarity of the test items, instructions and the time taken to answer, the researcher applied the test a second time to a pilot sample from the same research population, consisting of (50) male and female students. After correcting the answers of the pilot sample, the students' answers were

arranged in descending order and divided into two categories, upper (25) and lower (25) in order to conduct statistical analysis and judge the validity of the test statistically for application, as follows:

- Discrimination power: When calculating the discrimination power for each item, it was found that the discriminating ability of the test items ranges between 0.27 – 0.74, which is a good discrimination coefficient for the test because the discrimination coefficient of its items exceeds 0.25, and according to these results, the test items are acceptable in terms of their ability to discriminate.
- Difficulty coefficient: The difficulty coefficient helps in determine whether questions are appropriate for the level of students. When questions that are too difficult or too easy may not give an accurate result of students' achievement. In light of this, the testees' responses were collected and scored. The results showed that that the difficulty level of all items ranged from 0.28 to 0.76, which is deemed satisfactory and acceptable.

3.5.2 Reliability of the test

Reliability means obtaining the same grades and under the same conditions if the test is repeated. To measure the reliability of the test, the researcher used the method of internal consistency (Alpha Cronbach), as the percentage of reliability of the test is 0.87, which represents a good ratio, and thus, the test is ready for application in its final form, see Appendix (1).

3.5.3 Scoring of the Test

The researcher calculated one score for each correct answer, and zero for each wrong answer, for objective items, and five scores for the essay items, so the highest score for the test is (60).

3.5.4 Application Stage

The experiment started in the English Department on Sunday in the first of October, 2023 for a period of fourteen weeks and ended on Thursday in the eighteen of January, 2024. After completing the application of the proposed cognitive strategy based on Matthew Lipman's cognitive theory, the achievement test is administered to the research sample on Monday in the fifteenth of January 2024.

Section Four: Analysis of Data, Discussion of Results, Conclusions, and Recommendations

4.1 Analysis of Data

4.1.1 Comparison between the Achievement of the Experiment and Control Groups in the Achievement Test

To verify the hypothesis of the study that states, "There is no significant difference between the mean scores of the experimental group's achievement and that of the control group's achievement in the achievement test". The researcher used the T-test for the two independent groups to determine the significance of the differences between the average scores of the post-application of the achievement test for students of the experimental and control groups, as shown in table (2):

Table (2) The Mean Scores, Standard Deviations, and T-Value of the Groups in the Achievement Test

Groups	Sample	Means	S D	T-Value	DF	Level of Significance
experimental	50	88.75	5.46	5.78	98	0.05
Control	50	81.60	6.83			

It is clear from table (2) that the average scores of the experimental group who study according to the proposed cognitive strategy based on Matthew Lipman's cognitive theory outperformed the control group who study according to the conventional method. Based on the results of the statistical analysis that showed the superiority of the experimental group over the control group, the alternative hypothesis is accepted.

4.1.2 The Impact of the Proposed Cognitive Strategy on the Achievement of Students in Testing

To show the impact of the experimental treatment of the proposed cognitive strategy on student achievement, the effect size (η2) was calculated, as shown in the following table:

Table (3) ETA Square Value (η^2) and Effect Size (d)

Independent variable	Dependent variable	t-value	(η^2) value	d-Value	Impact size
Proposed Strategy	Achievement	٢١.٦٦	٠.٨٨	3.7	Large

It is clear from table (3), that the value of (d) came at each of the levels and in the total score of the achievement test between (2.1, 3.7), which indicates that there is a significant difference in achievement, between the average scores of application, this is due to the impact of the proposed cognitive strategy.

4.1.3 Black's Adjusted Gain Ratio to Verify the Effectiveness of the Proposed Cognitive Strategy

Black's adjusted gain equation is used to measure the effectiveness of using the proposed strategy for experimental group students. The following table shows the results:

Table (4) The Average Scores of the Experimental Group Students and the Percentage of Average Gain in Student's Achievement

Level	Final Score	Average for the Control Group	Average for the Experimental Group	Percentage of Average Gain	Level of Significance
Achievement	50	62.04	88.75	1.30	0.05

From table (3), it is clear that the average gain rate for the performance of the experimental group students is 1.30, which is statistically significant, because it exceeded the percentage that Black considered the minimum acceptance of effectiveness which is 1.2. This means that the use of the proposed cognitive strategy based on Matthew Lipman's cognitive theory achieved maximum effectiveness in students' achievement of the experimental group.

4.2 Discussion of Results

It is clear from the results of the research that the high achievement of students in the dimensional application for the experimental group that was taught by the proposed cognitive strategy, and this may be for the following reasons:

1. Applying what has been gained from experience through the practice of activities and questions in real teaching situations.
2. Help to continuously evaluate students, raise the level of their thinking and reach higher levels due to standing on each behavioural objective, achieving it and observing it as a behaviour apparent to the learner.
3. They have the ability to express ideas, opinions and mental abilities related to the ability to analyze, plan, solve problems and speed mental trials, as well as the ability to think abstractly, collect and coordinate ideas, and speed of learning, which gave the student a skill in using this strategy in similar teaching situations.

4.3 Conclusions

In the light of the obtained results the effectiveness of the constructed strategy could be attributed to the following:

1. The work of the mind of the students and the arbitration of knowledge. They have to fully understand the topics studied.
2. The clear role of mental trial for the students of the experimental group in all aspects of cognitive, emotional, psychomotor and integrative areas of the three areas, which are reflected positively on the practical behaviour of the experimental group students compared to the control group.
3. Teaching by using the proposed cognitive strategy led students to realize the importance of the subjects and their connection to their lives, which helped to overcome the difficulty of the material, and their enjoyment of studying the subject, and their continuous benefit with their awareness of the subject and its active role in the actual application of teaching.
4. Teaching by using the proposed cognitive strategy encourage students during educational situations to learn educational content, carry out

activities with enthusiasm and effectiveness, and reach appropriate results, write them down, discuss and review them for validity.

5. Teaching by using the proposed cognitive strategy contributed to raising the cooperation, teamwork, competition, speed in performance and avoiding negative behaviours among students.

4.4 Recommendations

On the basis of the obtained results and drawn conclusions, some recommendations are put forward:

1. The need to provide appropriate opportunities for students to exercise their mental abilities, by providing them with educational experiences related to their reality, giving them sufficient time and providing educational environments that help achieve these goals.
2. The need for university lecturers to be informed about learning theories such as Matthew Lipman's cognitive theory and to employ these theories in the field of teaching.

References

-Anderson, Garry and Arsenault, Nancy (1998) *A Fundamental of Educational Research.* 2nd ed. USA. Routledge Falmer, Taylor& Francis Group.

- Anderson, J. R. (2015). *Cognitive Psychology and Its Implications* (8th ed.). W.H. Freeman.

- Baron, J. (2008). *Thinking and Deciding* (4th ed.). Cambridge University Press.

- Bryson, J. M. (2018). *Strategic Planning for Public and Nonprofit Organizations: A Guide to Strengthening and Sustaining Organizational Achievement* (5th ed.). Hoboken, NJ: John Wiley & Sons.

- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and Quasi-Experimental Designs for Research.* Boston: Houghton Mifflin.

- Cattell, R. B. (1971). *Abilities: Their Structure, Growth, and Action*. Boston, MA: Houghton Mifflin.

- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage Publications.

- Eysenck, H. J., & Eysenck, M. W. (1985). *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press.

- Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology*, 59(6), 1216–1229.

- Lipman, M. (1998) What Can Critical Thinking Be? In D. D. Van Vleet (Ed.), *Philosophy in the Classroom* (3rd ed., pp. 35-48). Philadelphia: Temple University Press.

- Lipman, M. **(**2003) *Thinking in Education.* Cambridge: Cambridge University Press.

- McCrae, R. R., & Costa, P. T. Jr. (2003) *Personality in Adulthood: A Five-Factor Theory Perspective* (2nd ed.). New York: Guilford Press.
- Mercier, H. (2016). The argumentative theory: Predictions and empirical evidence. *Trends in Cognitive Sciences, 20* (9), 689-700.
- Mischel, W. (1968). *Personality and Assessment*. New York: Wile
- Nickerson, R. S. (2004). *Thinking and Reasoning: The Psychology of Deduction*. Lawrence Erlbaum Associates.
- Nisbett, R. E. (2003). *The Geography of Thought: How Asians and Westerners Think Differently... and Why*. The Free Press.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). *Culture and Systems of Thought: Holistic vs. Analytic Cognition*. Psychological Review, 108(2), 291-310.
- Pressley, M., & Harris, K. R. (2006). Cognitive Strategy Instruction: From Basic Research to Classroom Instruction. *Handbook of Educational Psychology* (2nd ed.), edited by P. A. Alexander & P. H. Winne, 265-286. Mahwah, NJ: Lawrence Erlbaum Associates.
- Scriven, M. (1991). *Evaluation Thesaurus* (4th ed.). Newbury Park, CA: Sage Publications.
- Siegler, R. S., & Alibali, M. W. (2005). *Children's Thinking* (4th ed.). Upper Saddle River, NJ: Prentice Hall.
- Slavin, R. E. (2018). Educational psychology: Theory and practice (12th ed.). Pearson.
- Sternberg, R. J. (1997). *Thinking Styles*. Cambridge: Cambridge University Press.
- Stufflebeam, D. L., & Shinkfield, A. J. (2007). *Evaluation Theory, Models, and Applications.* San Francisco, CA: Jossey-Bass.
- Zimmerman, B. J. (2002). *Becoming a Self-Regulated Learner: An Overview*. Theory into Practice, 41(2), 64-70.

Appendix (1)

The Final Form of the Achievement Test

Q1/ Write the number of the item and the letter of the correct choice (10 marks)

1. Which of the following option best defines "validity" in testing?

    a) The consistency of test results
    b) The fairness of test administration
    c) The accuracy of what a test measures
    d) The difficulty level of the test items

2. What is the main purpose of a diagnostic test?

a) To assess overall language proficiency
b) To diagnose specific strengths and weaknesses in a learner's skills
c) To evaluate general knowledge
d) To measure performance against a standard

3. What is meant by "washback" in the context of testing?

a. The impact of testing on teaching and learning
b. The process of revising test items
c. The method used to score tests
d. The comparison of test scores with norms

4. Which of the following option is an example of a summative assessment?

a) A mid-term exam
b) A placement test
c) A feedback session
d) A homework assignment

5. What is a norm-referenced test designed to do?

e. Assess students' knowledge against a fixed set of criteria
f. Rank students in relation to each other
g. Measure individual progress over time
h. Evaluate the content learned in a specific course

6. Which of the following options best describes "reliability" in a test?

a) The test's ability to measure what it claims to measure
b) The consistency of test results over time
c) The appropriateness of the content of the test
d) The ease with which the test can be administered

7. What is the primary goal of formative assessment?

a) To provide grades at the end of a course
b) To diagnose learning difficulties
c) To monitor ongoing progress and guide instruction
d) To compare students' performance to others

8. Which of the following options best describes a criterion-referenced test?

a) It compares a student's performance to that of other students
b) It assesses students based on predefined criteria or standards
c) It is used primarily in large-scale assessments
d) It is designed to predict future performance

9. Which method is typically used to ensure the reliability of a test?

a) Administering the test to a small sample group first

b) Conducting item analysis after the test is administered
c) Ensuring the test covers a broad range of content
d) Using multiple forms of the same test

10. Which of the following options is an example of a direct test of speaking?

a) Asking students to answer multiple-choice questions about grammar
b) Having students write an essay on a given topic
c) Asking students to participate in a role-play or conversation
d) Having students fill in blanks in a text

Q2/ Choose the correct term that fills in the blank from the four given options. (10 marks)

1. The measure of a test's ability to consistently produce the same results over time is called _____.

a) Validity b) Reliability c) Practicality d) Authenticity

2. A test designed to measure students' knowledge or skills after a period of instruction is known as a _____ test.

a) Diagnostic b) Formative c) Summative d) Placement

3. In a norm-referenced test, a student's performance is compared to _____.

a) Predefined criteria b) Other students' performances

c) The teacher's expectations d) National standards

4. The concept of _____ refers to the degree to which a test measures what it claims to measure.

a) Validity b) Reliability c) Objectivity d) Feasibility

5. A test that measures how well a student has learned a specific body of knowledge is called a _____ test.

a) Criterion-referenced b) Norm-referenced c) Proficiency d) Diagnostic

6. The process of using test scores to make judgments about individuals' abilities or knowledge is known as _____.

a) Assessment b) Evaluation c) Grading d) Calibration

7. The term _____ refers to the impact that testing has on teaching and learning practices.

a) Washback b) Alignment c) Moderation d) Validation

8. When a test is too easy for most students, it is said to have a low _____.

a) Validity b)Difficulty level c)Reliability d)Discrimination index

9. _____ tests are used to diagnose specific areas of weakness in a student's knowledge or skills.

a) Achievement b)Proficiency c)Diagnostic d)Placement

10. In testing, _____ refers to the appropriateness of the content and tasks included in the test for the target group.

a) Content validity b)Test administration c)Practicality d)Authenticity.

Q3/ Answer the following questions: (5 marks for each question)

a. What are the purposes of assessment?
b. Bloom (1971), has developed the concept of formative and summative assessment. Discuss.
c. What is the difference between use and usage?
d. What are the main characteristics of the Communicative Approach?
e. What are the factors which affect a test and make it unacceptable?
f. What are the techniques used with open – ended questions?
g. What do we mean by True \ False items? Explain with example.
h. What are the advantages\ disadvantages of matching items?