Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 May; 6 (5s): 135-149

The Effectiveness of a Proposed Teaching Model Based on the Situational Learning Theory and Psychological Theory in Deductive Thinking among Intermediate Grade Students

Lect. Hassan Abdul Aziz Mohammed AL Qassim, Dhi Qar Education Directorate, prof .Dr. Ahmed Yahya Hassan Al-Sultani
ha75an@utq.iq
College of Education for Humanities / University of Babylon
ahmedhum11.2016@gmail.com

Received: 15-March-2023
Revised: 19-April-2023
Accepted:11-May-2023

Abstract

The current research aims at (The effectiveness of a proposed teaching model based on the situational learning theory in deductive thinking among intermediate grade students), to achieve the aim of the research, the two researchers formulated the following hypothesis: (There are no differences with statistically significant at the level (0,05) between the average of experimental group students who studied according to the proposed model and the control group students who studied according to the usual method in deductive thinking test .

The two-researchers relied on an experimental design with a partial controlling consisting of two groups, experimental and control. The research community consisted of intermediate and preparatory schools from directorate of education in Thi-Qar /Department of Qalaa Suker . The researcher selected AL-Naba'a AL-adheem intermediate school for boys. The research sample consisted of the two groups from the second intermediate stage named "A" and "B". Group A consists of(37) students represented by an experimental group. Group B consists of (37) students represented by a control group. The two researchers conducted equivalence in a number of variables (Age calculated in months previous in formation test, intelligence). The researchers prepared the research requirements which required creating a proposed model according to the assumptions and the principles of situational learning theory. The researchers prepared the studying tool represented by a deductive thinking test consisting of(30) multiple – choice items , of deductive thinking skills (induction, deduction, inference). The two researchers used appropriate statistical means such as (t-test) for two independent sample and (Ita square) to know the effectiveness of the independent variable in deductive thinking. The results of research showed the superiority of experimental group students who studied according to proposed teaching model based on the situational learning theory over the control group students who studied according on traditional method in deductive thinking. The researchers came out with the number of conclusions, recommendations and suggestions.

Key words: proposed model, situational learning, relationships and interactions with others, Psychological Theory, deductive thinking, Intermediate grade.

Chapter one

Statement of the Problem

Depending on traditional teaching techniques and the application of techniques that exclude interaction between classroom experiences and their direct application to students' daily life through social negotiation to address the issues they face, and between what they possess of previous knowledge. This made the students face difficulty in understanding and learning, which was reflected in their level of thinking, and prevented them from thinking of new paths, different from their familiar thinking, to which they are permanently accustomed.

As a result of the two researchers' experiences with the educational system's teaching practices and their colleagues' discussions on the factors contributing to intermediate-stage students' inadequate level of thinking, the researchers attribute this to the fact that most teachers rely on traditional methods to teach the subjects of the curriculum, regardless of their compatibility with the desire of the students, their academic levels, and their lack

of provocative thinking. And that the teaching strategies and methods used at the present time do not help to achieve the goal of thinking among students.

That is, In order to benefit from it in dealing with life circumstances in a social context that might face them, today's state of teaching fails to care about the culture of thinking, which resulted in a drop in their level of thinking, as was supported by a number of studies, such as the study of Al-Saadi (2015), and the study of Al-Sumaidai (2012), in the absence of an appropriate educational environment that stimulates levels of thinking, especially deductive thinking, which requires the preparation of experiences, various activities, and modern models that modern education seeks.

The researchers concluded that since this would have a detrimental impact on their level of learning, they required to focus on the student as a key turning point in the educational process and actively engage him in the class, and giving him the opportunity to express his opinions, in a way that raises his levels of thinking, can be achieved by relying on a teaching model based on A modern social constructivist theory in teaching, such as the situational learning theory, linking the acquired experiences to the reality of students' daily lives.

Because of this, the researchers are attempting to implement the steps of the suggested teaching model in line with the situational learning theory in the hopes that it will be one of the strategies to improve middle school students' level of thinking, and to provide them with deductive thinking skills (deduction - induction - inference), Therefore, the problem of the study was represented by the following main question: **What is the effectiveness of a proposed teaching model based on the situational learning theory in the deductive thinking of middle school students?**

The importance of the research: The importance of the current research can be summarized through the following:

1. The value of education in creating societies, developing human beings capable of keeping up with scientific advancement, and creating environments that help shape people's personalities, and prepares him comprehensively in all spiritual, mental, physical, and social aspects.

2. The significance of situational learning comes from the fact that it presents significant scenarios as one of the key entry points that aid the learning process, by linking them to experiences in the realistic learning environment, allowing students to actively build their knowledge, relying on themselves, instead of transferring it to them by the teacher.

3. The importance of teaching models in implementing the curriculum, stimulating students' levels of thinking, improving and modifying their interpretations, and confronting them with real situations that constitute a problem, through which students try to find appropriate solutions, through research, in ways away from complications.

4. The importance of deductive thinking shows that it makes the student in the intermediate stage able to face his problems in the future.

5. The importance of deductive thinking, as it represents an indispensable mental activity when the student encounters educational situations that require thinking. Its aim is to come up with results, or new information, based on information available in the situation, and to link each reason to a specific result.

6. The importance of deductive thinking comes from the fact that it is an educational method that is included in many methods of teaching and learning, as the student through it creates hypotheses and finds facts using the processes of induction, deduction, and inference.

7. The significance of contemporary teaching models, techniques, and methodologies as research into adopting the suggested teaching model in line with situational learning theory in the educational area becomes more and more important, as it is an experimental attempt, in creating positive attitudes in learning, and demonstrating its effectiveness, which may contribute to raising the level of deductive thinking for middle school students.

8- The importance of the intermediate stage as the basis for the preparatory stage, through which the student can develop his thinking and move from concrete thinking to abstract thinking.

The Objective of the Research: initiating a proposed teaching model according to situational learning theory and demonstrating its effectiveness in deductive reasoning for students of the second intermediate grade.

Research Hypothesis:

There are no statistically significant differences at the significance level (0.05) between the mean scores of the students of the experimental group, according to the proposed teaching model based on situational learning theory, and the mean scores of the students of the control group who study according to the traditional method in the deductive reasoning post- test.

limitations:

Spatial limits: Students of the second grade are average in intermediate and secondary governmental and day schools in the directorate of education of Dhi Qar governorate/ department of Qalaat Sukkar district .

Time limits: The first semester of the academic year (2022-2023).

Definitions of Key Terms:

The Teaching Model was defined by: (Al-Adwan and Al-Hawamdeh) as: "a schematic representation of events, operations, and procedures in a logical manner that is understandable and interpretable" (Al-Adwan and Al-Hawamdeh, 2011,163).

The two researchers define it as a procedural teaching model: It is a course of action that the researcher follows and specifies the duties of the teacher and the student, as well as a series of actions and procedures. to regulate the didactic attitude in teaching; to help students build their knowledge and bring about changes in their level of thinking.

Situational learning: (Zeitoun) defined it as: "the acquisition of information and the learning of skills through the context that reflects how to obtain knowledge and apply it in daily life, and is related to students' needs and interests, and that knowledge is acquired through attitudes, activities, environment, and culture." (Zaitoun, 2008: 64).

The two researchers define situational learning procedurally as: an introduction to teaching that includes a list of guidelines for various educational activities, created by the researcher to instruct middle school students in an engaging manner in accordance with foundations and assumptions, in order to solve a problem., and to link what the student learns of knowledge and skills for an educational situation, with the reality of his life in a realistic learning environment. .

Deductive Thinking is defined by: (Razouki and Suha) as: "a cognitive mental process that requires distinct thinking to solve a problem or make a decision, by reaching a conclusion from several premises, using specific rules and strategies in logical organization" (Razouki and Suha, 2015: 13).

The two researchers define deductive thinking procedurally as: the ability of middle school students to make decisions, to solve problems, to reach new results, and the ability to predict by realizing the relationships between scientific concepts, with inductive and deductive thinking through their possession of the mental skills related to deductive, as measured by the total score obtained by the student in the deductive thinking test.

Chapter Two

Theoretical Background and Previous Studies

Teaching Models:

A teaching model is a representation that explains or forecasts a scientific process or phenomena. The model has a purpose, which is a representation of an element or a process, and it also has simplification and explanation that ensures that the objective is appropriately represented by using it in the prediction process (Lee et al, 2017: 307). The teaching model is built on a set of postulates and assumptions that enable the teacher to take certain actions. It proves its validity and effectiveness, as the model includes a set of rules and principles that govern the existing relations between its concepts, or its various terms, as it is seen as an applied format within the

classroom, or as a guideline; to direct the implementation of learning activities; Which facilitates the educational process to achieve its objectives (Ali, 2010: 164).

The Importance of the Teaching Model:

The significance of teaching models is made clear by the fact that they help students learn knowledge while putting out the least amount of effort and resource utilization. To enrich the learning process, and to develop the curricula, through the process of applying its elements with procedural steps in teaching, which represent guides for the teacher and the student in the learning process, and provide students with good, skills, and ideas that is, it has a major role in opening new horizons for thinking processes, and it helps students understand the environmental reality surrounding them, and understand themselves through the knowledge and experiences provided by these models (Al-Masoudi, 2018, 18).

Characteristics of the Teaching Model:

(Qatami and others) pointed out that the teaching model in general has a number of characteristics that formed three axes in its content, namely:

1- Reduction: Where the model works to reduce the complex and intertwined teaching reality.

2- Focus: The model works to highlight some of the characteristics, which gives great flexibility to the student and the teacher, in how to deal with the educational reality.

3- Discovery: The teaching model can be considered a tool that helps researchers develop their theories and discover new models that are closer to the educational reality (Qatami et al., 2008: 157).

The Suggested Teaching Model:

The Objectives of the Proposed Teaching Model:

The proposed teaching model has a set of goals that the researchers seek to achieve, including:

1- Acquisition of deductive thinking skills (Induction - deduction - inference) for middle school students.

2- Activating the role of the student and stimulating his thinking through his interaction with the experiences he encounters in educational situations, as a result of his participation in the practical activities of the group.

3- Making the student apply the knowledge he has reached with a high degree of proficiency

4- Giving students an opportunity to interact positively with the issues and problems of the society in which they live.

5- Allowing the use of teaching aids that help students learn to build knowledge by themselves. As well as the use of evaluation methods through the evaluation stages.

The Basis and Principles on which the Proposed Teaching Model is Based:

The researchers reached a set of foundations on which the proposed model was based, namely:

1- Learning happens in a lively social setting, through the actions and attitudes of the learner, and by putting them in front of a genuine challenge in real life.

2- Provide students with experiences and attitudes that are related to the student's surrounding environment.

3- Emphasizing the principle of interaction, which allows the student to acquire different patterns and relationships that expand and enrich his ideas.

4- Considering the abilities, needs, and philosophical underpinnings of the second-grade intermediate students.5- Exchanging ideas through dialogue with others in the community; To guide thinking and perception, and solve problems.

The Steps of the Proposed Teaching Model:

The researchers formulated the steps of the proposed teaching model in a procedural manner, which are as follows:

1- Preparation and Mental Arousal:

In this stage, the teacher might use mental stimulation to engage the student's cognitive processes and prior knowledge through practical exercises. The goal is to stimulate the student's mind and foster a sense of positive motivation.**2- Situational Acquisition of Tasks:**

This is done through the teacher presenting the material in the form of questions, real activities and various educational models, and at this stage the impact of learning will be transferred to actual practices.

3- Cooperation and Participation: At this point, it is highlighted that learning happens as a result of taking part in the group's practical activities because group learning is more successful than solo study.

4- Meditation and Thinking: The teacher gives the students an opportunity to review the efforts made to complete the educational task in a reflective situation, and it can be done individually, or through positive interaction within cooperative groups.

5- Practical Application of the Educational Situation:

At this stage, it is important for students to apply what they have learned, in terms of information and skills, which the student has acquired with the knowledge structures he possesses through interaction and reflection.

6- Bridging: Students are expected to present an educational scenario based on the reality of daily life because situational learning is the acquisition and learning of information and skills that are reflected after getting them in how to use them in real social life circumstances.

7- Evaluation and Feedback: At this stage, the teacher verifies the students' understanding of the extent to which the objectives of the educational situation are achieved, and issues subjective judgments related to the learning process.

8- Situational Learning: A variety of various settings are used in the classroom to execute situational learning, which is interactively designed to let students go through those experiences and apply them to their everyday life, And it is built on the idea that knowledge is the product of the relationship between the individual and the environment in which he lives, where learning occurs through integration into realistic teaching situations, and therefore the focus here is on providing educational experiences in life situations, and not in a separate way through problem-solving situations, and not just the traditional processes required in formal education, because of its impact on student performance. (Choi & Hannafin,1997:63)

An instructional strategy known as "situational learning" helps students learn by putting their experiences into real-world contexts and connecting the classroom to their surroundings and social interactions., including their focus on comprehensive understanding, as situational learning should not proceed linearly in teaching, which is what happens naturally in school, as a result of the student knowing the practical feasibility of the information he studies. (Rubin, 2007:62)

The Principles of Situational Learning: Situational learning has a number of principles that serve as intellectual foundations and starting points, which are:

1- Learning is based on the actions of daily situations.

2- Knowledge is acquired through context and transferred to all similar situations.

3- Learning is the product of a social process that includes different ways of thinking.

4- Learning and work environment cannot be separated, but exist in strong and socially complex environments, which consist of individuals, actions and attitudes. (Pitri,2004:6)

Deductive Thinking:

deductive thinking represents the link between different patterns of thinking, such as critical and creative thinking, innovative thinking, and other patterns. Because students like you for his skills, they represent the highest mental abilities related to intelligence, which is the epitome of mental activity, so it leads to innovation and acquisition it benefits the creators in evaluating their creativity, and it is also considered a necessary necessity for scientific thinking, as scientific thinking is hypothetical and deductive, in which hypotheses are formulated and tested empirically to reach conclusions subject to the laws (Shavinina, 2004: 250).

The Skills of Deductive Thinking:

1- The Skill of Deductive Inference: It is the process of reaching conclusions that clarify the relationship between important parts, by comparing their common characteristics, based on previous experiences with knowledge of these characteristics (Ali, 2011: 201), where deductive reasoning represents the ability of students to increase the size of the relationships between the available information; In order to reach a specific result through deep thinking, and the subject (Al-Atoum et al., 20011:29).

2- The Skill of Deductive Reasoning:

The deductive reasoning skill is described as a mental process that helps the student to move from general principles to special, individual, or partial cases, where his skill is focused on the definitive logical syllogism mentioned in some of its introductions, all, some, nothing or linear syllogisms, and its introductions include comparisons like equals, less than to reach a certain result. (Saladek & Bond, et al,2010:98)

3-The Skill of Inductive Reasoning: It is a process that starts from a hypothesis, statement, or observation, and includes taking appropriate procedures to test the hypothesis; In order to deny or prove it, and to reach a conclusion, or evaluation, based on the observation and available data (Hussein, 2009: 197), so the skill of inductive reasoning is a mental process that aims to reach conclusions, or generalizations, taking advantage of the available evidence, or the information obtained It is required by the student during his previous experience (Al-Atoum et al., 29: 2011).

Second: Previous Studies:

Table (1) shows the previous studies

no	Name, year and place of study	Objective of the study	Size and type of study sample	Methodology	Tool of the Study	Statistical Means	Findings of the study
1	The study of Al ,) Mayahi (2013 (.Iraq	Identify the effectiveness of teaching with the Thelen model in cognitive preference anddeductive thinking among students of the Department of Physics - College of Education for Girls.	(32) Freshman First stage,Department of Physics, College of Education	Experimental Approach	Deductive Reasoning Test Cognitive preference test	test- t Single Variance Analysis ^{2} of the square Impact size	There is a statistically significant difference at the level of significance (0.05) between the average scores of the students of the Department of Physics in the experimental and control groups in deductive thinking and cognitive preference and in favor of the experimental group
2	The study of Al-	Identify the effect of using brain-based learning strategies in developing science	(85) Students alif	Semi-experimental approa	The test of science processes	t-test for two independ	There is a statistically significant difference at the level of significance (0.05) between the average scores of eighth grade

	Mashaqbah,2017) Jordan	processes and deductive thinking skills in science among eighth grade students in Zarqa Governorate	Primary School Eighth grade	ch	And the test of the deductive reasoning skills	ent samples and single variance analysis	students in science in the experimental and control groups in the development of science processes and deductive thinking in the dimensional application and in favor of the experimental group

Chapter III

Research Methodology and Procedures

First: The Descriptive Method:

The researchers used the descriptive approach as the appropriate approach for the procedures used to build the proposed teaching model according to the situational learning theory, and to identify its components and elements. The first stage involves the analysis in which the surrounding educational environment is analyzed, and the researchers conducted the analysis stage according to the following steps:

1- The Analysis of the Educational Environment: In order to analyze the educational environment, the school building was inspected, and it was found that there are three academic divisions (A, B, and C) for the second intermediate grade, and that the shift is morning and two days.

2- Determining the School Subject: The two researchers identified the material for the current research, for the second intermediate grade, for the academic year (2022-2023).

3- The Analysis of Educational Goals: In view of this, the educational objectives of the proposed teaching model were determined according to the situational learning theory, and these objectives were presented to a group of arbitrators. To demonstrate its integrity and sincerity, all opinions and amendments were taken into account.

4- The Analysis of the Characteristics of the Students: To analyze the characteristics of the students, the following was found: The researcher went to the school to determine that all of the participants in the present study sample were males only, with an average age of (14–15) years and a range of (155–169) months for their chronological ages. The research sample members have never undergone a research experiment, using a proposed teaching model, as a previous experience that affects the results of the current research.

Determining the Educational Needs:

A- The Analysis of the Needs from the Point of View of Students:

The researchers identified educational needs, which are as follows:

1- Giving students an opportunity to discuss, debate and ask questions among themselves and the teacher.

2- Linking academic subjects to the student's real life.

3- Providing modern tools and means in teaching to enrich the learning process and create motivation and excitement among students.

4- Organizing the academic content to suit the needs and abilities of students to reduce individual differences between them.

B- The Educational Needs of Students from the Point of View of Teachers:

The researchers directed an open questionnaire to a number of middle school teachers. The questionnaire was determined by the following questions:

1- What are the objectives to focus on in the teaching process?

2- What are the difficulties you face in teaching at the intermediate stage?

3- What are the teaching needs that should be focused on and that you think are necessary to contribute to students' mastery and understanding of the learning process?

4- Do modern teaching models and methods help achieve learning goals?

The Second Stage / The Design and Development:

1- Determining the Basic Steps of the Proposed Model:

The basic steps of the proposed teaching model were identified, and they consisted of seven steps, namely:

1- Preparation and mental arousal.

2- Acquisition of tasks situationally.

3- Collaboration and participation.

4- Meditation and reflection.

5- Practical application of the educational situation.

6- Bridging.

7- Evaluation and feedback.

The Third Stage: Implementation:

After confirming the readiness of the proposed teaching model for implementation, the researchers committed themselves to a set of procedures and implementation steps that will be dealt with later within the experimental approach.

The Fifth Stage: Evaluation and Feedback:

A- Evaluation: The Evaluation Process Includes Three Stages:

1- The Preliminary Evaluation is represented by a set of procedures prepared by the researchers before implementing the proposed teaching model, by presenting it to a group of arbitrators and experts in order to verify the validity of the teaching model and its suitability for its own objectives. Experts have unanimously agreed on its validity after making some amendments to its paragraphs.

2- Formative Assessment (construction): The formative evaluation aims to verify the course of the educational process, support it, correct it and address its negative aspects

The proposed model includes a set of activities to achieve this type of evaluation, namely:

1- Objective questions derived from previously identified behavioral goals.

2- Daily and quarterly tests for second grade intermediate students, whether written or oral.

3- Worksheets for activities, active participation in individual and group discussions and dialogues.

3- Concluding Assessment (final): It is in the final stage of the educational process, by setting a test to find out the extent to which educational goals are achieved and students' performance is evaluated, and this is achieved through the application of research tools represented by choosing deductive thinking .

B. Feedback: In light of the results, adjustments can be made at each stage of the teaching model, and the procedures that take place in one stage do not end by moving to the next stage, but rather they can be returned to in light of the feedback; to make the required modifications.

Second: the Experimental Method:

1. Experimental Design: The researchers chose the experimental design with partial control, with two experimental and control groups, with a post-test of deductive thinking, and it consists of two groups, the first is the experimental group that will be taught according to the steps of the proposed teaching model according to the situational learning theory, and the other control group that will be taught in the usual way and table (2) shows that

Table (2) Experimental design of the research

group	Independent variable	Dependent variable	Post-Test
Experimental	A proposed model according to the theory of situational learning	Deductive thinking	Deductive Thinking Test
control	Traditional way		

2- Research Community: The current research community consists of all students of the second intermediate grade in government day schools (intermediate and secondary) for boys affiliated to the Qalaat Sukkar Education Department for the academic year (2022-2023), as the number of schools reached (18) schools, and the number of students (2127) students.

3- Research Sample:

The Al-Naba' Al-Azim intermediate school for boys was chosen randomly (lottery) to represent the research sample. The researcher visited the school with papers to facilitate the task of the general directorate of Dhi Qar education / Qala Education Department, and found that the school includes three classes (A, B, C) for the second intermediate grade for the academic year (2022-2023), the two research groups were identified, as Division (A) represented the experimental group and their number reached (42) students, and Division (B) represented the control group, and their number reached (40) students, as the total members of the research sample became (82 students, and the students who failed (8) were excluded, as they were excluded statistically only so that their experience does not affect the results of the experiment, and thus the members of the final research sample were (74) students, distributed by (37) students for the experimental group, and (37) students of the control group, and Table (3) shows that:

Table (3) Distribution of students in the experimental and control groups

no	group	section	Number of students before exclusion	Number of students who failed	Number of students After exclusion
1	Experimental	A	42	5	37
2	control	B	40	3	37
Total			82	8	74

4- The Equivalence of the Two Research groups:

Before applying the experiment, the researchers decided to make a statistical equivalence between the experimental and control groups in some variables that affect the results of the experiment, namely (chronological age calculated in months, intelligence test, previous information test) through the use of statistical means represented by the t-test for two independent samples, it was found that there were no statistically significant differences between the experimental and control groups in these variables at a degree of freedom (72) and a level of significance (0.05). Table (4) shows this:

Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 May; 6 (5s): 135-149

Table (4) the results of the equivalence of the t-test for the experimental and control groups

Variables	Control group		Experimental Group		t-test value		Statistical significance
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	Calculated value	Tabular value	
age	161.05	5.25	160.32	3.98	0.673	1,993	non Function Statistically
Previous information	31.32	9.35	32.14	10.27	0.509		
intelligence	31.32	9.35	32.14	10.27	0.355		

5- The Time and Place of the Experiment: The experiment was applied to the experimental and control groups at Al-Naba' Al-Azim Intermediate School for Boys, and the time of the experiment for the two research groups was equal, as the experiment was applied in the first semester of the academic year (2022-2023), as it started on Tuesday 11/1 / 2022 and ended on Wednesday 4/1/2023

6- The Preparation of the Research Tool: The current research requires the preparation of tools to measure the dependent variable (deductive thinking), represented by the deductive thinking test, which is as follows:

First: Determining the Objective of the Deductive Thinking Test: The test aims to know the effectiveness of the independent variable, which is the proposed teaching model in measuring the deductive thinking of the research sample of the second intermediate grade students.

Second - Determining the Skills of the Deductive Thinking Test: The researchers identified the main skills of deductive thinking represented by the skill of deduction, the skill of induction, and the skill of inference . The two researchers formulated the deductive thinking test items, based on these skills, with 10 test items for each skill:

Third: Determining the Paragraphs of the Deductive Thinking Test: The two researchers prepared the test items in light of his skill, and the test consisted of (30) multiple-choice items in order to measure the effectiveness of the model based on situational learning theory in measuring the deductive thinking of the students of the research sample.

Fourth: The Instructions of the Deductive Thinking Test: The researchers were keen to put the test instructions on the first page of the test, and the deductive thinking test instructions were as follows:

A- Instructions for Answering the Deductive Thinking Test: The researchers set out to set the instructions for the deductive thinking test, and the researchers put the following instructions:

*Write your name and division in the space provided for it on the answer sheet.

*The test in front of you consists of (30) items from a multiple test. Each item has three alternatives, one of which is the correct answer.

*Circle the letter that represents the correct answer to the topic paragraphs.

*The time allotted for answering deductive reasoning test is 40 minutes.

B – The Instructions for Correcting the Deductive Thinking Test:

The researchers prepared the correction key for the typical answers, and one point was given to the paragraph whose answer was correct, and zero to the paragraph whose answer was incorrect.

Fifth – Checking the Validity of the Deductive Reasoning Test: The researchers presented the test to a group of arbitrators to verify the validity of each paragraph of the deductive thinking test, and the logicality of the proposed solutions (alternatives).

Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 May; 6 (5s): 135-149

Sixth: The Validity of the Deductive Thinking Test: The researchers adopted two types of validity to demonstrate the validity of the test:

1- Face Validity: It refers to the general appearance of the test, in terms of the type of vocabulary, how it is formulated, and the extent to which the test is suitable for the purpose for which it was set (Abu Al-Taman, 2007: 134). The researchers presented the test in its initial form to a group of arbitrators to express their opinions and observations about the general form of the test to indicate the validity of its paragraphs, and to add, modify, merge or delete paragraphs if they are inappropriate, after the observations of the experts, the paragraphs that obtained an agreement percentage of (0.80) or more were considered valid, and in this he indicated (Al-Jabri, 2011), that if the paragraph obtained an agreement percentage of the arbitrators of (0.80) or more, it would be valid (Al-Jabri, 2011). 2011: 218).

2- Construct Validity: The researchers deducted this kind of validity to measure deductive thinking through the relationship of the skill to the other skill and its relationship to the total score of the test. Correlation coefficients were calculated between the degree of each skill and the total score of the test, and internal correlations were found between each skill and the other skills of the test using the correlation coefficient (Pearson), and Table (5) shows that:

Table (5) The correlation coefficient of each skill with the other skill, and its correlation coefficient with the total score of the test

Skills	Deduction	induction	inference	Total
Deduction	1			
Induction	.540**	1		
Inference	.506**	.358**	1	
Total	.856**	.771**	.782**	1

* The tabular value is equal to (0.197) at the level of significance (0.05) with a degree of freedom (98).

Seventh - Reconnaissance Application for the Deductive Thinking Test:

A - The First Exploratory Application of the Achievement Test: In order to verify the clarity of the test paragraphs and the time it takes to answer, the researchers applied the test to an exploratory sample similar to the research sample consisting of (30) students, in a random manner from Al-Rabea Intermediate School for Boys, on Sunday 8/1 / 2023, after applying the test, it became clear to the researchers that the answering instructions and the test items were clear and understandable, and the answer time was calculated by calculating the average time of the students upon completion, so the average time for answering the test items was (40) minutes.

B - The Second Exploratory Application for the Paragraphs of the Deductive Thinking Test (the sample of statistical analysis):

In order to analyze the items of the deductive reasoning test statistically, the researcher applied the test to a survey sample consisting of (100) students from the second intermediate grade from the research community and not from its sample, from Al-Awfia Intermediate School for Boys, on Tuesday corresponding to 10/1/2023, The answers were divided into two categories, high and low, and the researchers chose a percentage (27%) of the students' answers from the upper group. The following calculations were calculated:

1- The Coefficient of Difficulty and Ease of the Paragraphs of the Deductive Thinking Test: The researchers confirmed the calculation of the coefficient of difficulty and ease, using the paragraph difficulty coefficient, on each paragraph of the deductive thinking test, and found that it ranges between (0.33_ 0.65), so all test items for the current research are appropriate, and their difficulty coefficient is good in terms of this statistical indicator.

2- Discrimination Coefficient of the Items of the Deductive Thinking Test: The researchers calculated the strength of discrimination of each item of the deductive test using the discrimination equation for the selection

items. It was found that it ranges between (0.30_0.52), as the test item whose discrimination coefficient is greater than (20% or more) is considered an acceptable and well-distinguished item (Al-Munaizal and Al-Atoum, 2010: 133), and according to this criterion, all the test items of the current research enjoy good discrimination power.

3- The Effectiveness of False Alternatives for the Deductive Thinking Test: The researchers calculated the effectiveness of the wrong alternatives for all items of the deductive test of the multiple choice type, amounting to (30) items it was found that the coefficients of effectiveness of all false alternatives are negative, and range between (0.07_, 0.19_), meaning that these alternatives attracted the students of the lower group more than the students of the upper group, which indicates the effectiveness of all false alternatives for the items of the deductive test.

Eighth: The Stability of the Deductive Thinking Test: The two researchers verified the stability of the deductive thinking test by the semi-partition method, where the researchers relied on the scores of applying the second survey test, which amounted to (50) answer sheets, Which was withdrawn from the statistical analysis sample, and paragraphs were divided deductive reasoning test to the degrees of the individual paragraphs and the degrees of the even paragraphs, and in order to verify the stability of the test, the researchers used the Pearson correlation coefficient, if the Pearson correlation coefficient reached (77%), and the stability coefficient was correct according to the Siberman-Brown equation, so the test stability coefficient was (86%), which is a good stability coefficient and its value is acceptable. Table (6) shows this.

Table (6) the values of the stability coefficient by split half method for the deductive thinking test

No	Domain	Correlation coefficient between the two halves	Coefficient of stability after correction
1	Deduction	0.77	0.83
2	induction	0.72	0.81
3	Inference	0.82	0.94
deductive thinking test as a whole		0.77	0.86

Thus, the test became ready for the final application, in measuring the deductive thinking of the students of the experimental and control groups of the second intermediate grade students.

Chapter Four

Presentation and Discussion of the Results

First: The Presentation of the Results:

(Deductive thinking) To verify the validity of the null hypothesis, and after treating the data statistically, the results showed that the average score of the experimental group that was taught using the proposed teaching model according to the situational learning theory was (20), with a standard deviation of (4.36), while the average score of the control group that studied the same subject using the usual method was (12.16), and with a standard deviation of (6.55). And when using the T-test for two independent samples (T-test); To know the significance of the statistical difference between the two groups, it appeared that there was a statistically significant difference at the level of significance (0.05), and with a degree of freedom (72), the calculated t-value of (9.44) was greater than the tabular value of (1.993), and this indicates that there are statistically significant differences between the two groups in favor of the experimental group. Based on the result, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is a significant difference. statistics between the two groups in the dimensional deductive reasoning test, it resulted because the proposed teaching model was used according to situational learning theory as a method, and table (7) shows this result.

Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 May; 6 (5s): 135-149

Table (7) The results of the T-test for two independent samples to know the significance of the statistical differences between the two groups (experimental and control) in the dimensional deductive reasoning test.

group	Sample size	Arithmetic mean	Contrast	Standard deviation	Degree of freedom	T-value		Significance level 0.05
						Calculated	Tabular	
Experimental	37	20	19.01	4.36	72	9.44	1.993	Function in favor of experemental
control	37	12.16	6.55	2.56				

Effect Size: To calculate the effect size of the independent variable (the proposed teaching model according to situational learning theory) on the dependent variable (deductive thinking), an ETA square was calculated to reveal the degree of influence, and it amounted to (0.359). This means that the effect size is high, which indicates that the independent variable (the proposed teaching model) has a high impact on the dependent variable (deductive thinking), and Table (8) illustrates this.

Table (8) the effect size of the proposed model on the achievement of physics

Independent variable	Dependent variable	η value	(η^2) value	Impact size
Proposed teaching model	**Achievement in physics**	**0.744**	**0.553**	**big**

Second: Interpretation of the results: The findings of the two researches showed the effectiveness of the proposed teaching model according to the situational learning theory in the deductive thinking, as evidenced by the superiority of the experimental group over the control group that studied in the usual way, and the high average scores of students in the deductive thinking test the researchers believe that these results may be due to the following reasons:

1- The proposed teaching model helped to develop the students' mental and practical abilities, especially in their ability to conclude or making deduction and extrapolation to reach successful solutions to the educational situation

2- The proposed teaching model, according to situational learning theory, contributed to providing students with experiences, skills, and ideas and that it has a major role in opening new horizons for thinking processes and developing students' mental thinking abilities. To reach successful solutions to the educational situation.

3- The clear connection of the model with the situational learning theory as an innovative teaching model based on an educational theory based on social constructivism, which led to students acquiring deductive thinking skills, because that is one of the characteristics of the theory on which the model is based.

Third: Conclusions: The researchers reached a number of conclusions according to the results obtained, after they completed their research procedures, and treated the data statistically, which are as follows:

1- Teaching using the proposed teaching model contributed significantly to organizing the educational situation, and avoiding randomness in teaching through the use of educational aids and educational techniques in the best way to increase the level of their deductive thinking, and direct their behavior towards educational situations related to their daily lives.

2- Teaching according to models based on situational learning, which works to retain information for a longer period in the student's cognitive structure and to acquire it in a better situational way. Because it deals with situations related to the environment surrounding them from the reality of daily life, with what you have learned in the classroom.

3- Teaching using the proposed teaching model according to the situational learning theory gave a positive role to students in the education process, through observation, deduction and acquisition, by linking what they learn with the situations of daily life, which contributed to increasing social interaction, and making a student an interactive thinker able to exercise deductive abilities.

Fourth: Recommendations: In the light of the results and conclusions that emerged from the study, the researchers recommend the following:

1- Focusing on the student being the basis of the educational process and minimizing the influence of the teacher to become a guide, in order to give the student an opportunity to learn by himself in a social environment based on dialogue and discussion.

2- Developing deductive thinking for secondary school students through the use, principles, and assumptions of educational applications of situational learning theory and trying to include their skills such as inductive, inference, and deductive in the physics curricula and emphasizing on it in the teaching process.

3- Implementing the applications and principles of situational learning theory in the curricula of the different stages and training teachers to use them during teaching.

Fifth: Suggestions: As a complement to this study, the researchers propose to take advantage of the proposed teaching model according to the situational learning theory in conducting a number of the following studies:

1- Conducting a similar study using the proposed teaching model for the current research and demonstrating its effectiveness on a sample of students (females) in the intermediate stage.

2- Conducting a study to identify the effectiveness of the proposed teaching model according to situational learning theory in other variables of thinking such as (divergent, holistic, associative, creative) thinking.

References

1. Abu Al-Taman, Izz Al-Din (2007), Mechanisms of Statistical Thinking, Part 7, Al-Fateh University Publications, the Great Jamahiriya.
2. Al-Atoum, Adnan Youssef and others (2011), Educational Psychology between Theory and Practice, Dar Al Masirah for Publishing and Distribution, Amman, Jordan.
3. Ali, Muhammad Al-Sayed (2010), Trends and Modern Applications in Curricula and Teaching Methods, Dar Al Masirah for Publishing and Distribution, Amman.
4. Al-Jabri, Kazem Karim Reda (2011), Research Methodology in Education and Psychology, Dar Al-Kitab for Publishing and Distribution, Baghdad, Iraq.
5. Al-Mashaqba, Mutaib Odeh (2017), The effect of using some brain-based learning strategies on developing science processes and deductive thinking skills in science among eighth-grade students in Zarqa Governorate, Journal of Education and Mental Health, Algeria, Issue (7), 98-116.
6. Al-Masoudi, Muhammad Hamid (2018), Modern Models in Curriculum, Teaching and Evaluation, 1st Edition, Dar Al-Radwan for Publishing and Distribution, Amman, Jordan.
7. Al-Mayahi, Aithar Abdel Mohsen Qasim (2013), The Effectiveness of Teaching Using Thelin Model in Cognitive Preference and Deductive Thinking among Female Students of the Physics Department, (unpublished master's thesis), College of Education, University of Al-Qadisiyah.
8. Al-Munaizal, Abdullah Faleh and Al-Atoum, Adnan Yousef (2010), Research Methods in Educational and Psychological Sciences, 1st Edition, Dar Ithraa for Publishing and Distribution, Amman, Jordan.
9. Al-Saadi, Sherine, Ali, Rahim (2015), The effectiveness of a proposed program in the collection of educational psychology and the development of critical thinking skills among students of the College of Education in the light of quality standards. (Unpublished PhD thesis), College of Education for Human Sciences, Ibn Rushd, Baghdad.
10. Al-Sumaidaei, Manal Muhammad Ibrahim (2012), The effectiveness of an educational program based on cognitive strategies and metacognition in the collection of teaching methods and the acquisition of teaching skills and divergent thinking among students of the Ibn Rushd College of Education for Human Sciences, (unpublished doctoral thesis), Ibn Rushd College of Education, Baghdad University.
11. Choi ،J. & Hannafin ،M (1997). The effects of instructional context and reasoning complexity on mathematics problem solving. Educational Technology Research and Development45،(3) 55-43،.

12. Lee, S., Chang, H-Y., & Wu, H-K. (2017). Students' views of scientific models and modeling, Do representational characteristics of models and students' educational levels matter?. Research in Science Education, 47(2), 305–328.
13. Pitri, E(2004), Situated Learning in the class community ,Art Education57(6).
14. Qatami, Youssef and others (2008), Teaching Design, Dar Al-Fikr Publishing, Amman, Jordan.
15. Razouqi, Raad Mahdi, and Soha Abra, Heim Abdul Karim (2015), Thinking and its types, Part 2, College Library, for printing and publishing, Baghdad, Iraq.
16. Rubin, B.C.(2007)."Laboratories of Democracy", A situated Classroom, Theory and Research in Social Education, 35(1), 62- 95.
17. Shavinina ,L.,V. (2004). Explaining high abilities of Nobel laureates. high ability studies,15(2), 243-254.
18. Sladek, R.M. ,Bond, M J. Phillips ,P.A (2010), Age and gender differences in preferences for rational and experiential thinking. Personality And Individual Differences, 49 (8), 907- 911.
19. Zaytoun, Kamal Abdel-Hamid (2008), Designing Educational Programs with Constructivist Thought - Intellectual Rooting and Empirical Research, Al-Masirah House for Publishing and Distribution, Amman, Jordan.