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The Effect of Robinson's Strategy on Achievement and Mathematical Strength among First Intermediate Students in Mathematics

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Abstract

The aim of the present research is to identify the effect of Robinson's strategy on achievement and mathematical strength among the first middle students in mathematics. The sample consisted of (64) students of the first intermediate students in (Mohammed Al-Baqir Boys' Secondary) of the Directorate of Education in Dhi- Qar by (33) students in the experimental group (31) students in the control group. The achievement test was prepared by (40) items. (32) substantive paragraphs and (8) paragraphs, the apparent validity of the test and the validity of the content were calculated and the stability coefficient of the test was calculated using the Alpha-Kronbach equation (0.81). The apparent validity and constructively were verified and the stability coefficient was used by Coder Richardson 20 equation (0.88). Using the appropriate statistical methods, the results showed that the experimental group students who studied according to the Robinson strategy were superior to the control group students who studied in the usual way in the achievement test. Results A number of conclusions , recommendations and proposals were reached.

El efecto de la estrategia de Robinson en el rendimiento y la fortaleza matemática entre los primeros estudiantes intermedios de matemáticas

Resumen

El objetivo de la presente investigación es identificar el efecto de la estrategia de Robinson en el rendimiento y la fortaleza matemática entre los primeros estudiantes de secundaria en

matemáticas. La muestra consistió en (64) estudiantes de los primeros estudiantes intermedios en (Secundaria Mohammed Al-Baqir Boys ‘) de la Dirección de Educación en Dhi- Qar por (33) estudiantes en el grupo experimental (31) estudiantes en el grupo de control. La prueba de rendimiento fue preparada por (40) ítems. (32) párrafos sustantivos y (8) párrafos, se calculó la validez aparente de la prueba y la validez del contenido y se calculó el coeficiente de estabilidad de la prueba usando la ecuación de Alpha-Kronbach (0.81). La validez aparente y constructiva se verificó y el coeficiente de estabilidad fue utilizado por la ecuación Coder Richardson 20 (0,88). Utilizando los métodos estadísticos apropiados, los resultados mostraron que los estudiantes del grupo experimental que estudiaron de acuerdo con la estrategia de Robinson fueron superiores a los estudiantes del grupo de control que estudiaron de la manera habitual en la prueba de rendimiento. Resultados Se llegó a una serie de conclusiones, recomendaciones y propuestas.

Chapter One: Definition of Research

First: Research Problem:

The present era witnesses enormous changes in knowledge and scientific knowledge, which greatly increases the information and discoveries. Thus, our educational institutions must work in a way that suits these developments taking place to keep pace with this development is through diversification of modern teaching methods, employing scientific material appropriately and excitement and excitement to attract the attention of the learner of scientific material. In particular, mathematics needs such modern strategies to avoid the weakness of the “students” in attainment especially in the intermediate stage because they are a link between the perceived and abstract processes, which makes them ready for the material and thus help the operations of the force For mathematical, in terms of interdependence, communication, and mathematical reasoning, and through the foregoing

the researcher sees the need to keep up with the modern models and strategies that help the learner to "learn" and the teacher in mastery and control of the material and delivery appropriately, and thus adopted the researcher Robinson strategy and knowledge of its impact in all Achievement and Mathematical Strength among First Intermediate Students in Mathematics. Hence the problem of the search with the following question.

What is the impact of Robinson's strategy on achievement and mathematical strength among the first students in mathematics ?.

The importance of research: The importance of research is reflected in the following:

Theoretical importance:

1. Is a scientific attempt by the researcher because there is no local and Arabic study (to the knowledge of the researcher) working according to the use of (Robinson strategy) in the achievement and mathematical strength of the students of the first average in mathematics.
2. It provides feedback to decision makers and officials in the educational and educational systems, in knowing the importance of Robinson's strategy in achievement and developing the skills of students in the processes of sports power.

Applied Importance

1. Teachers and researchers may benefit from the mathematics achievement test and the mathematical strength test that the researcher will build.
2. The mathematics teacher may benefit from Robinson's strategy and use it in teaching mathematics.

Research hypothesis:

1. There is no statistically significant difference at the significance level (0.05) between the mean, the scores of the experimental group students who studied by adopting the Robinson strategy and the average scores of the "control" students who studied in the normal way in the achievement test.
2. There is no statistically significant difference at the significance level (0.05) between the average scores of the experimental group students who studied according to the Robinson strategy and the average scores of the control group students who studied in the normal way in the test of mathematical strength.

search limits:

1. The first grade intermediate students in the middle and secondary day schools affiliated to the Directorate General of Education in Dhi Qar for the academic year (2019-2020).

2. The content of three chapters of the book of mathematics for the first grade average, the first edition of 2016, namely (fifth: geometry, sixth: measurement - areas and volumes).

3. The second semester of the academic year (2019-2020).

Define terms:

Robinson's Strategy: Known by:

1. (Attia, 2009): Metacognitive strategies called the five-step system of reading, which contribute to increase the effectiveness of reading and increase understanding and comprehension "(Attia, 2009: 44).

Procedurally defined by the researcher: It is a strategy based on teaching the first grade intermediate, five steps with the material involved in the researcher's experience, which are the specific chapters of the book of mathematics in order to reach the increase in achievement.

Collection: knew by: -

1. Abu Jadu (2009): It is the "outcome" of what the student is learning after a certain period of time, and can be measured by the degree to which the student gets in an achievement test, in order to know the success of the strategy developed and planned by the teacher to achieve his goals and what the student reaches. From knowledge translated into degrees "(Abu Gado, 2009: 425).

The theoretical definition of achievement adopts the 'Abu Jadu definition (2009) and adopts a theoretical definition, as it fits with the requirements of the subject of this research.

The researcher defines achievement in practice: It is the result of what the students of the research sample learned from mathematical knowledge gained as a result of the study of the three chapters included in the book of mathematics for the first grade average, after the passage of the experiment and can be expressed in the degree obtained by the student in the achievement test prepared by the researcher in mathematics .

Mathematical Strength:

1. (NCTM, 1989): "The maximum mathematical knowledge that students can employ in their three dimensions (conceptual, procedural and problematic) in discovery, mathematical reasoning and reasoning" (NCTM, 1989: 1-2).

Known as' researcher procedurally: is the total ability in the collection of mathematical knowledge and use in thinking and communication, mathematical coherence and problem-solving mathematically and life.

Chapter II

Theoretical aspect:

First, the SQ3R strategy applies to the five steps of reading, including the humanities and natural sciences, the founder of this system Francis Robinson in 1946, and also attributed to him and called the name of Robinson, a strategy used at the higher levels, and the term called these Strategy SQ3R)), is the lettering of the steps of the strategy experienced by the learner during the learning of a particular lesson, which makes it an effective and organized strategy It makes the learning process easy and thus facilitating the learner to read the subject and the texts contained in a good and careful reading carefully and critically at the same time, leading To think and hold the world Computational mathematics or problem solving, they also make the process of remembering, and retrieving information previously studied quickly and easily, this strategy consists of five steps.

S - Survey.

2- Q (Question) I ask.

(Read) R -3.

(Recite) R -4.

R 5.

The role of the teacher in this strategy is to apply it in a modeling way and provide learners with a working guide. Includes guidance in this strategy for practicing learning (Attia, 2008: 571).

SQ3R Strategy Stages

1. Browse the subject or text or poll (poll): In this step the reader conducts a quick survey of the text, meaning (readers or first readers) The purpose of this step is to get an idea of the topic at hand and can give subtitles showing each title about his ideas.

2. Self-Accountability: In these steps the reader asks about the self about:

- Possibility to give titles that may be sub-topic ideas.

- Questions that he can answer.

- What did you learn from the subject after his survey and what ideas he got and what he wants to reach, provided that the blogging is in the questions posed by.

3 - Reading the text (examiner): In this step read the reader subject reading carefully looking for answers to the questions posed in the previous step, trying to read everything contained in the text of data and tables.

4 - recitation (retrieval): In this step the reader summarizes the ideas of the topic, and linking them and formulate them in his own way, and hear it

himself, and then note the summary in his own way an indicator under the basic ideas and important in the subject.

5 - Review: After reading the subject carefully and retrieve his ideas begins with the process of “review” of the review process of reading and writing questions, and retrieve the answer or answers to questions and compare what has been achieved and obtained with what should be to indicate the strengths and weaknesses in the learning and understanding of the topic.

The review process includes:

- Write questions on aspects that the reader considers important.
- Write questions about notes and sub-ideas.
- Answer questions you have received at the end of the topic or in your margins.
- Place questions that are thought to be difficult and important in cards kept with their answer for reference when needed. (Attiyah, 2008: 156).

The Educational Importance of the Robinson Strategy (SQ3R):

The educational significance of Robinson’s strategy is illustrated by the following:

- Simplicity of procedures, and ease of application.
- The possibility of employing them in the majority of learning materials.
- Develop the ability of the learner to read critically and carefully, and develop the ability to rely on himself in the learning process.
- Reading makes an active process (Attiyah, 2010: 157) (Al - Hashimi and Dulaimi, 2008: 189).

Second: “Collection:

The process of moving the learner from one level of study to another level is subject to his academic achievement, which qualifies him for success, where academic achievement is one of the main axes that occupied a lot of research and studies, it is the basis of the educational process, in this study is the academic achievement is dependent variable and subject to the impact of the educational method And academic achievement as a concept is the knowledge obtained by the learner through a curriculum for a course or a program designed to adapt to the educational environment.

Factors affecting the collection:

1 - the amount of self-motivated learners (internal) and interest in studying, and exert effort and energy multiplier.

The amount of physical, mental and psychological integrity enjoyed by the student.

3 - teaching methods and the accompanying suspense or excitement and attract attention to learners and involve them in the educational activity, promotion and others, and this is a kind of external motivations for learning.

(Issawi 149: 2000,).

Mathematical Power

2.1 The concept of mathematical power:

NCTM defined the National Mathematical Teachers Committee in the United States of America (NCTM, 1989) the mathematical power in the fourth criterion of mathematical evaluation, as knowledge and post-mathematical knowledge, including the ability of learners to reasoning, creative thinking and critical thinking, as well as their ability to formulate and solve familiar problems It is also a set of abilities that students can use to think and communicate mathematically and life through the following:

The ability of the learner to use his knowledge to solve problems.

The ability of the learner to use the language of mathematics to communicate ideas.

The ability of the learner to link the conceptual and procedural knowledge.

The learner's ability to analyze and reason mathematically.

C - the learner's awareness of the integration of mathematical and other knowledge.

The student's understanding of the nature of mathematics and the usefulness and tendency towards it.

(NCTM, 1989: 205-208)

NAEP (2000) notes that mathematical power is a modern approach that is not limited to mathematical knowledge such as achievement, but also takes into account other processes that can be developed through "mathematics" (e.g. Written expression or oral communication, discussions, perception of concepts, inferring characteristics and generalizations associated with them).

Dimension (s) of sports power:

Mathematical strength consists of three main dimensions:

The first dimension: mathematical knowledge

It includes three types of knowledge and experience: conceptual knowledge, procedural knowledge and problem solving, as follows:

Conceptual Knowledge

It is illustrated by the student's understanding of mathematical concepts.

B- Procedural Knowledge:

The student demonstrates his procedural knowledge in mathematics when he chooses and uses the appropriate procedures for the mathematical situation correctly.

C. Solving the problem:

Problem solving is not only the application of skills, knowledge or previous experience, but also contains many mental processes and multiple, and overlapping such as remembering, representation, imagination, perception, abstraction and generalization.

(Shara, 2002: 32).

The second dimension: mathematical operations

It includes three types: mathematical communication, mathematical coherence, and deductive thinking as follows:

1. Sports Communication

One of the basic components of mathematical power is that it represents the main objective of learning mathematics, as mathematical ability includes self-confidence towards mathematics, and the power to solve problems, and the mathematical communication with others about ideas and solutions and the power of reasoning. (109: 1998, Cantlon).

2. Mathematical interdependence

The student's understanding of the links between the branches of mathematics, between mathematics and other subjects, between mathematics and everyday situations, contributes to the development of his mathematical sense, and develops mathematical communication skills, and other skills such as reading tables and charts, and graphs.

3. Deductive thinking:

Is the process of selection, organization, understanding and foresight, because it involves the selection of previous experiences to solve the problem that requires as much information as possible, in order to reach convergent solutions, and there is a difference between the activity of trial and error, and the activity of reasoning, including (deductive thinking), in inference learner tempted different possibilities In his mind, instead of rushing immediately into an activity not preceded by contemplation and planning, he is guided in solving the problem by what his memory and previous experience suggest (Ghanem, 2001: 190).

Second: Previous Studies: The researcher presents in this section "previous studies" related to the subject of research, which contributed to enrich the research in a number of axes, namely:

1. Al-Jubouri Study (2011): The Impact of Modeling Thinking and SQ3R

Strategies on Reading Comprehension and Critical Thinking among Fourth Grade Students in Reading. This study was conducted in Iraq University of Babylon College of Education, the researcher deliberately chose Toledo preparatory for girls, and the research sample reached (154) students, by (35) students of the first experimental group studying according to the modeling strategy and (34) students in the second experimental group that study The research tools were applied to the two research groups and analyzed the results using statistical methods. The results of the analysis resulted in a statistically significant impact of the thinking modeling strategies and SQ3R on reading comprehension and critical thinking."Experimental".

2. Al-Saadi (2011): The Effect of Robinson's Strategy on Developing Reading Comprehension among First Grade Students in Reading. This study was conducted in Iraq, at the University of Mustansiriya College of Education, the researcher chose the school district of Ord intentionally, and the sample of the research (63) students (32) in the experimental group and (31) in the control, was rewarded with a number of variables, including the previous achievement age and intelligence The researcher applied the research tools to the two research groups and analyzed the results using statistical methods. The results of the analysis resulted in a statistically significant impact of Robinson's strategy in the development of reading comprehension.

C

1. Studies dealing with sports power:

1- Study (Sultan, 1986):

The study was conducted in Riyadh and sought to know the effect of both traditional and contemporary mathematics on the development of reasoning thinking for first and secondary students. A sample of 320 students was selected, 160 for two groups equal in age and IQ in the test designed to measure deductive thinking, one studied contemporary mathematics, and the other traditional mathematics. She developed a 60-paragraph inference reasoning test and used the T-test as a statistical method. The researcher found statistically significant differences at the level (0.01) in the performance of the post-test of the two groups, in favor of the contemporary mathematics group, as well as statistically significant differences at the level (0.01) in the performance of the pretest and post-test in favor of the traditional mathematics group. I concluded that contemporary mathematics and traditional mathematics have an impact on the development of deductive thinking, but that contemporary mathematics has more influence

than traditional mathematics. (Sultan, 1986: 79-122)

Carbidian study (Grabedian, 1981)

Conducted a study in the United States of America, it sought to determine the impact of students' study and proof of training on the collection of engineering materials and the growth of deductive thinking, and to find the relationship between deductive thinking and achievement in engineering. The researcher selected a sample of 369 students in the tenth and eleventh years of age, were distributed in two groups, experimental and control, and each group includes nine classes, were taught units of space and parallel lines.

The experimental group studied more geometric proof than the control group. The experimental group demonstrated 80% or 90% of the units' proofs, while the control group demonstrated only 50%. The researcher prepared three tests: the first in heuristic thinking, the second and the third in the achievement of the units of area and parallel lines.

The researcher used ANOVA test and Person correlation coefficient and statistical methods, and found no statistically significant differences between the pretest and posttest in the achievement as well as the differences were not statistically significant in the reasoning test.

However, the researcher found a positive relationship statistically significant at the level (0.05) between deductive thinking and achievement in both units of area and parallel lines.

(Grabedian, 1981: 586)

Benefiting from the aspects of the previous studies:

1- Assist the researcher in building the tests after being informed of a certain number of tests included in some previous studies to measure the dependent variable.

2 - In the preparation of teaching plans for research material.

Choose the appropriate statistical means.

Chapter III: Research Methodology and Procedures

Experimental design: - The researcher relied on one of the semi - experimental designs, partially controlled for two equal groups, namely, "experimental and control", where the strategy represents Robinson independent variable in the experiment, while the achievement and mathematical strength of the variable in the experiment table (1).

Table (1) quasi-experimental design of the research

the Design of research semi - experimental Table 1:

Measure In depend variable	In depend variable		Equivalence between two gropes	Depend variable
TEST- the collection	-the collection	Robinsons strategy (SQ3R)	Intelligence- tis lennon	Experimental
TEST TheMathematical power	-The power	Normal way	Previous collection Chronological ge	control

Research Society and Sample:

Research community: The research community identified the first grade middle school students in the middle and high schools of the Directorate of Education Dhi Qar Nasiriyah branch in the province of Dhi Qar for the academic year (2019-2020).

Research sample: The research sample was chosen intentionally (Mohammed Baqir al-Sadr secondary school for boys), and was selected through the lottery Division (B) to represent the experimental group that will study students B strategy Robinson, where the number of students (33) students after the exclusion of failing students and Division (A) To represent the control group, which will be studied in the usual way as the number of students (31) students after the exclusion of failing students.

Control procedures: The two groups were rewarded with a number of variables (previous mathematical knowledge, chronological age, intelligence) after the researcher obtained the chronological age from school records, the previous knowledge was obtained students’ scores after testing and examining their answers and determine the scores of each. The application of (Levin test) to two independent samples to know the significance of the difference between the different degrees of students of the experimental and control groups, and know the value (F), at a certain indication level, and the level of significance for the value of F)) for each of the equivalents is greater than the level of significance (0.05), which means That the two groups are homogeneous in this variable. Applying t-test for two independent samples to determine the significance of the difference between

the mean scores of the experimental and control groups, the value of t (t) at a certain significance level for each of the equivalents was greater than the adopted significance level (0.05) and the degree of freedom (61). The experimental and control groups are equivalent in these variables, as shown in Table (2):

Table (2): Equivalence of the research sample in previous mathematical knowledge, age and intelligence

Table 2: Equivalence of the Research Sample According to their Age, Previous Achievement and Intelligence

Statistical significance 0.05 (at	df	t-test for Equality of Means		Levene's test for Equality of Variances		Standard deviation	Average calculation	Order number	Division	Group	Variable
		Sign		Sign							
No sign	62	0.13	1.5	0.37	0.78	2.9	8.5	33	B	Experimental	Previous collection
						3.1	9.5	31	A	Control	
No sign	62	0.92	0.09	0.50	0.45	6.7	153.0	33	B	Experimental	Chronological age
						7.7	153.1	31	A	Control	
No sign	62	0.51	0.65	0.61	0.25	5.3	13.2	33	B	Experimental	Intelligence Intelligence
						3.6	12.4	31	A	Control	

Search Requirements:

Determine the scientific material: The scientific material to be taught specified the chapters (fifth - geometry, sixth - measurement / areas and volumes) of the book of mathematics for the first grade medium / part II, the first edition, for the year 2016.

Determining behavioral objectives: Specific objectives for teaching the subject were developed in the form of behavioral purposes according to the BLOM levels (remember, understand, apply, analyze, structure, evaluate).

Preparation of teaching plans: 45 teaching plans were prepared for each group and presented to a group of arbitrators and amended and finalized.

Research tool: The research tool included achievement test and we will show the mechanism of building the test as follows: -

Achievement test: One of the requirements of the research is to prepare or build an achievement test within the chapters included in the subject, so the researcher followed the following steps:

1. Determine the objective of the test: The main objective of the test is to measure the achievement of first grade students of the subjects covered in the research from the book of mathematics scheduled for the academic year (2018-2019) based on the behavioral purposes set for that educational content.
2. Determination of scientific material: The content of the scientific material that will be studied for the two research groups was determined.
3. Formulation of behavioral purposes: The behavioral purposes were derived from the content of the article prescribed from the book of mathematics for the first grade intermediate C 2 and identified behavioral purposes based on the views of the arbitrators and specialists, which amounted to (196) behavioral purposes distributed among the six levels of Bloom.
4. Determining the number of test items: The number of test items was set to (40) test items, taking into account the abilities of students at this age level and the time scheduled for them in any previous test.
5. Preparation of the test map (specification table):

Table 3: Specification table

Namb er of paragr aphs	Cognitive domain levels						The relat ive weig ht of thecl ass	Chapt er title	Cha pter
	evalu ation	install ation	anal ysis	Imple mentation	16 % understa nding	reme mber			
19	1	1	2	5	3	7	43.5 %	Engin ering	fifth
21	1	2	2	5	3	8	52.5 %	Spaces and sizes	VI
40	2	3	4	10	6	15	100 %	total	

. Formulation of achievement test paragraphs: After preparing the specification table, the researcher consulted with a number of experts in teaching methods of mathematics and teachers of mathematics for the first grade to determine the number of paragraphs of achievement test, and it was agreed that (40), were formulated two types of questions type I objective, which includes (32) a paragraph of multiple choice and type II pans and includes (8) paragraphs includes steps to solve the student.

Answer instructions:

7. Preparation of test instructions:

(7-A) Answer Instructions:

The test instructions are necessary instructions to guide the student in the performance of the test, and whatever the test questions are very effective, they become useless if the student does not know how to write his answer within the specified time, and therefore formulated instructions for answering the test as well as the total score for each of the first and second questions Consider carefully reading each paragraph and then choose the correct alternative among the four alternatives for each paragraph of the first question and not to choose more than one alternative to the paragraph and not leave any paragraph without answering it.

(7-B) Correction Instructions: Instructions were prepared for answering the achievement test. The first question included (32) substantive paragraphs and the total score of the question is (32) degree, also illustrates the typical correct answer in relation to each paragraph of the second question with the notation of the score of each paragraph with that answer, which was determined in light of the number and sequence of steps of the correct solution For the paragraph, the second question included (8) paragraphs essay and the total score of the question (19) score, thus the total score for the achievement test as a whole (54) score.

8- Validity of the test: The validity of the achievement test has been extracted as follows:

(8-a) Al-Dhaheri: The researcher presented the paragraphs of achievement test with the behavioral purposes of each paragraph to a group of arbitrators and experts specialized in the methods of teaching mathematics and teaching methods of science, as well as teachers of mathematics to ensure the integrity of the paragraphs and suitability for the specific purposes, and clarity of wording and objectivity alternatives. Its attractiveness, which has been redrafted and modified, taking the views of experts after calculating the percentage of agreement (85%) and above.

8-b) Validity of the content: This was achieved through the preparation of

the test map (specification table), and in the light of the previous procedures, the achievement test is ready for implementation.

9. Sample information and statistical analysis sample for achievement test:

A) Sample information: For the purpose of determining the time required to answer the achievement test, and to find out the clarity of the paragraphs and its instructions, the achievement test was applied to an exploratory sample (information sample) consisting of (32) students in the first intermediate grade in the average mark Ahmed Waili affiliated To the Directorate General of Dhi Qar under the letter facilitating the task, was extracted the average time for the end of the first student from the answer and the last student (20-60) minutes was the average time (40) minutes.

(9-B) Statistical Analysis Sample: After applying the achievement test on the information sample and making the appropriate adjustments to the test, it is ready to be applied again for the purpose of conducting statistical analyzes of the test items. The test was applied to a second exploratory sample of (100) first grade students. In the (Al-Miqdad Boys') High School of Dhi Qar Education, under the Facilitation Letter, after making sure the students completed the three semesters covered by the research and after it was agreed with the school administration and the subject teacher in the mentioned school to conduct the test application and inform all students before One week from the test date.

10- Statistical analysis of the achievement test paragraphs: After applying the test on the statistical analysis sample, the following was done: Correcting the students' answer sheets, finding the final score for each student, arranging the answer sheets in descending order from the highest college to the lowest college degree, and identifying and sorting the scores of the group with the highest scores The highest scores and the lowest scores (27%) and the lowest (27%) of the two groups for statistical analysis.

(10-a) Difficulty coefficient of achievement test items: The difficulty was between (0.21 - 0.52). The difficulty of the paragraphs was also calculated using its difficulty equation and found that its value ranges between (0.44 - 0.63). (Allam, 114: 2006) The coefficient of difficulty of the test items ranges from 0.85-0.15 to be good.

10) b) The discriminatory power of the achievement test items: It was found to range between (0.32 - 0.75). The discriminatory force also calculated the paragraphs in accordance with the equation of their coefficient of discrimination, it was found to range between (0.32 - 0.61). The paragraphs are acceptable, as Dulaimi and Adnan (2005: 90) indicated that the paragraph is good if the coefficient of discrimination has more than 20%.

(10-c) the effectiveness of the wrong alternatives: The effectiveness of the alternatives was calculated by applying the equation of the effectiveness of the wrong alternatives in all the test paragraphs of the type (multiple choice) of the 35)) paragraph and found that the coefficient of effectiveness of all alternatives is negative and ranges between $(-0.50) - [0.04 (-)]$. That is, it attracted more answers from the students of the lower group compared to the answers of the students of the upper group and this is proof of their effectiveness.

11- Stability of the achievement test: The stability of the achievement test for the statistical analysis sample was calculated according to the Elva-Kronbach equation, as this equation is suitable for the test which consists of objective and objective paragraphs. The value of the stability of the achievement test is 0.81 and is a good value. The test is of acceptable stability if it is 80.0 or more (Allam, 2000: 543).

11-a) Correction stability of the paragraphs of the articles: For the purpose of verifying the stability of the correction of the paragraphs, the researcher withdrew (25) randomly from the statistical analysis sample answer sheets and then re-corrected again after (15 days) after the first correction, using the formula (Cooper) (The ratio of agreement between the two corrections was 99%), using the same equation and after all the answer sheets were corrected again by the mathematics teacher in the school where the researcher applied her experience, the ratio of agreement between the researcher and the school correction was calculated and reached 0.97. This stability, as indicated by Maggi Yassin and 2012) that the correction of the paragraphs of the essay stability is good and acceptable if the transaction (75%) and above (Majid Yassin and 93: 2012).

12 - Achievement test in its final form and application: The achievement test in its final form was applied at the same time to the two research groups on 29/4/2019 after the school (researcher) informed the students a week before the test date.

Building sports strength test:

The Mathematical Strength Test for first grade students was built according to the following steps:

1 - Determine the purpose of the test: The idea of determining the goal of the test is to measure the level of mathematical strength in the first grade students.

2 - review of the literature and previous studies: Have been looking at previous studies on the power of sports, including study (Dulaimi 2010), and others, and these studies have benefited the researcher in the division

of fields and the drafting of paragraphs.

3 - Determine the test of mathematical strength: by reference to the literature of this variable, and after the researcher consulted a number of specialists in the field of methods of teaching mathematics and psychology, and in the light of the opinions of experts were identified 56 paragraphs (mathematical communication skills, mathematical coherence and mathematical reasoning) for these areas. Measured by the test in the first grade students to match the mental abilities and abilities possessed by students in this stage.

4 - Formulation of test paragraphs in the light of specific areas: A number of test paragraphs have been formulated for each field to be consistent with the theoretical definition of each, and these paragraphs were formulated to suit the levels of students of the first grade average, and consisted of the test (50) of the type of selection Multiple.

5 - Presenting skills with paragraphs to the arbitrators: After determining the skills of mathematical strength and drafting test paragraphs in the light of the areas identified in the initial form, the skills were presented with paragraphs of (50) paragraph to a number of arbitrators, for the purpose of knowing their views and observations on the compatibility of paragraphs with skills The specifics addressed in the test and the validity of the formulation of paragraphs and validity to measure the level of athletic strength among the students of the first intermediate grade, and in the light of the guidance of the judges and their observations, where all were the result of agreement by more than (80%).

6 - Preparation of test instructions:

(6-a) Answer Instructions: A page has been prepared at the front of the test containing instructions for the test addressed to students, and these instructions aimed at the nature of the test and the purpose of it and how to answer, as well as note the total score of the test, and take into account the reading of each paragraph accurately and then choose the correct alternative Between the four alternatives for each paragraph, leaving no paragraph unanswered and not choosing more than one alternative.

(6-b) Correction Instructions: The test correction key has been prepared, where a score of (1) is assigned to the correct answer for the paragraph and (zero) to the wrong answer for the left or left unanswered or the paragraph for which more than one alternative has been selected, and included the test (50) a substantive paragraph of type (multiple choice).

7. Validity of the test: The validity of the sports strength test was verified using two types of honesty:

(7-a) virtual honesty: virtual honesty was achieved by presenting the test to a number of arbitrators and specialists in mathematics and methods of teaching and psychology, has been the acceptance of paragraphs that have received the percentage of agreement more than (80%) of the arbitrators.

(7-b) Building validity: Allam (2006) indicates that the method of coherence coefficient is intended to correlate between the scores of the test paragraphs (Allam, 2006: 111), and the consistency of the internal consistency of the mathematical strength test was confirmed by finding the correlation Between each of the:

1- The correlation coefficient of the scores of each paragraph with its field scores: The correlation coefficient was extracted based on the correlation coefficient Pearson Correlation (Coefficient), in order to find the correlation coefficient between the degree of each paragraph and the degree of its field, the results showed that all test paragraphs are statistically significant, as ranged The correlation coefficient values are between * □ (0.26-0.78), which is a good indicator of the validity of the construction to test the mathematical strength.

The correlation coefficient between the scores of each field and the total test scores: The correlation coefficient was extracted based on the correlation coefficient between the scores of each field and the total test score, using the Pearson Correlation Coefficient coefficient. The results showed that all test items are statistically significant. Correlation coefficients are between (0.54-0.73), which is a good indicator of the validity of the construction to test the mathematical strength.

8- Sample information and statistical analysis sample to test the sports strength:

(8-a) Sample information: The mathematical strength test was applied to the information sample to ensure the clarity of the test clauses and instructions, and to determine the time required enough for the students to answer all the test clauses. Ahmed Al-Waeli of the Directorate General of Education Dhi Qar under the facilitation of the task, the researcher recorded the most noticeable points that I observed during the conduct of this initial application, including clarifying some of the paragraphs inquired by a number of students and record the time it took for students to answer all paragraphs of the test, which ranged between (45 -77) minutes It was then that the average time is calculated to be 60 minutes to answer the specific students all paragraphs of the test of time.

(8-B) Statistical Analysis Sample: After the researcher applied the mathematical strength test to the information sample and made the appropriate

adjustments to the test, the test is ready to be applied again for the purpose of conducting statistical analyzes of the test paragraphs. The test was applied to the statistical analysis sample of (100) students. The first intermediate grade in the Sumer medium of the Directorate General of Education Dhi Qar under the letter facilitating the task, after it was agreed with the school administration in the school mentioned to conduct the test three days before the date of the test.

9 - Statistical analysis of the test paragraphs: After the researcher applied the test to the sample of statistical analysis, the following was done: The students' answer sheets were correct and the final score for each student was arranged and the answer sheets were sorted in descending order from the highest college score to the lowest college degree. The scores (highest) and the scores of the group with the lowest (lowest) scores through the use of a higher percentage (27%) and the lowest (27%) for the two groups for statistical analysis.

(9-a) Difficulty coefficient of mathematical strength test items: The difficulty coefficient was calculated for each of the test paragraphs, which were (50) items according to its difficulty coefficient equation.

(9b) Coefficient of Discrimination for Mathematical Strength Test Paragraphs: The discriminatory strength of each test paragraph was calculated according to its coefficient of equation, and was found to range from (0.66-0.37).

(9-c) the effectiveness of the wrong alternatives: It has been found to range between ([0.03 -] - [0.30-]), and this means that these alternatives wrong have dispersed students at lower levels, which indicates their effectiveness.

10- Stability of the Mathematical Strength Test: The value of the stability coefficient of the mathematical strength test applied to the statistical analysis sample was calculated according to the (Koder-Richardson 20) formula (K-R20), which depends on the application of the test at once and can be used to verify the homogeneity All test items that measure an attribute, and are binary (0,1), where the value of stability (0.88) indicates (Allam, 2000: 543) that the value of stability if (0.80) and above is a high value of stability, and thus became The test is ready to be finalized for the search sample.

11- The final sports strength test and its application: The final sports strength test was applied at the same time to the two research groups after the school (the researcher) informed the students one week before the test date.

Statistical means:

The researcher used the appropriate statistical methods, namely the equation of the coefficient of difficulty, the equation of the coefficient of excellence, the equation of the effectiveness of the wrong alternatives, the equation of Fakronbach, the Cooper equation and the test of Levin (s Test'Levene), for two independent samples and test (t- (test for two independent samples, and the equation of the impact size, also was used statistical package spss.

(Magidyasin, 2012: 93) (Odeh, 2002: 291) and others.

the fourth chapter :

Search results and discussion:

Here are the results of the results:

1. There is no statistically significant difference at the level of significance (0.05) between the mean scores of the fourth stage of the experimental group (who studied the Robinson strategy) and the control (who did not study according to the strategy) in the achievement test.

Table 4: A Statistical Description of the Experimental and Control Groups with Reference to the collection Variable

Statistical significance)0.05 (at	df	t-test for Equality of Means		Levene's Test for Equality of Variances		95% Confidence Interval of the Difference		Arithmetic mean error	Standard deviation	Average calculation	Order number	The group
		Sig. (2-tailed)	t	sign	F	Lower	Upper					
sign	62	0.04	2.0	0.18	1.8	-16.3	0.1	3.0	17.3	38.4	32	Experimental
						-16.3	0.1	2.6	14.9	30.19	31	Control

The application of (Levin test) to two independent samples to determine the significance of the difference between the different degrees of students experimental and control groups and reached the t value (t) (2.0) at the level of significance (0.04) which is smaller than the level of significance (0.05) and the degree of freedom (62) This indicates The students of the experimental group who studied by using the Robinson strategy outweighed the students of the control group who studied according to the usual method in the achievement test as in table (3). Thus, the first zero hypothesis was rejected and the alternative hypothesis accepted.

To determine the effect of the independent variable (Robinson strategy) on the dependent variable (achievement), the Eta-square test (η^2) was used to determine the magnitude of the effect of this independent variable and for the purpose of ensuring that the size of the differences using t-test are real differences due to the independent variable. Not to other variables, and then calculate the value of (d), which is the magnitude of this effect.

It is clear that the effect of the independent variable on the achievement of the first average students was average for the benefit of the experimental group who studied according to this variable as shown in the following table: Table (5)

The value of (η^2) and (d) and the magnitude of the effect on the collection of the experimental and control groups

Table5: The (η^2) and (d) Value and the Extent of the Effect of the Experimental and Control Groups

The amount of effect	values d	values η^2	df	t values	Depend variable	In depend variable
average	0.51	0.006	62	2.0	the collectio	SQ3R

2. There is no statistically significant difference at the level of significance (0.05) between the mean scores of the fourth stage of the experimental group (who studied the Robinson strategy) and the control (who did not study according to the strategy) in the test of mathematical strength.

Table (6) Statistical description of the experimental and control groups in variable (mathematical force)

Table 6: A Statistical Description of the Experimental and Control Groups with Reference to (The Mathematical power Variable)

Table 6: A Statistical Description of the Experimental and Control Groups with Reference to (The Mathematical power Variable)

Statistical significance)0.05 (at	df	t-test for Equality of Means		Levene's Test for Equality of Variances		95% Confidence Interval of the Difference		Arithmetic mean error	Standard deviation	Average calculation	Order number	The group
		Sig. (2-tailed)	t	sign	F	Lower	Upper					
sign	62					-5.8	5.8	0.9	5.3	14.9	32	Experimental
		0.02	2.2	0.76	0.09	-5.8	1.0	1.00	5.5	11.8	31	Control

The application of (Levin test) for two independent samples to determine the significance of the difference between the scores of the experimental and control groups and the t value (t) (2.2) at the level of (0.02), which is smaller than the level of significance (0.05) and the degree of freedom (62) This indicates The students of the experimental group who studied by using the Robinson strategy outweighed the students of the control group who studied according to the usual method in the test of mathematical strength as in Table (3). Thus, the first zero hypothesis was rejected and the alternative hypothesis accepted.

To determine the effect of the independent variable (Robinson’s strategy) on the dependent variable (mathematical force), the Eta-square test (η^2) was used to determine the effect of this independent variable and for the purpose of ensuring that the size of the differences using t-test are real differences due to the variable. The value of (d), which expresses the magnitude of this effect.

It is clear that the effect of the independent variable on the mathematical strength of the first average students was moderate and for the benefit of the experimental group who studied according to this variable as shown in the following table:

Table (7) The value of (η^2) and (d) and the magnitude of the impact on the mathematical strength of the experimental and control groups

Table7: The (η^2) and (d) Value and the Extent of the Effect of the Experimental and Control Groups

The amount of effect	values d	values η^2	df	t values	Depend variable	In depend variable
average	0.58	0.07	62	2.6	The Mathematical power	SQ3R

The results showed the following:

1. There is a clear impact of the Robinson strategy on achievement in the first graders average.
2. There is a clear impact of Robinson’s strategy on the mathematical strength of the first grade students.

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