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The impact of building a training program on teachers and students

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Abstract

The research aims to identify the impact of the proposed training program on mental mathematics among students of teachers who have been trained in the program. A mathematical strength test for mathematics teachers was applied. The appropriate statistical means were used to derive the results. As a result, there is a statistically significant difference at the level of (0.05) between the average scores of the mathematics students of the experimental group and the students of the control group. In conclusion, there is a clear impact of the training program on the athletic strength of teachers and mental math for students.

Key words: training program, students, teachers, mathematics.

El impacto de construir un programa de formación en profesores y alumnos

Resumen

La investigación tiene como objetivo identificar el impacto del programa de capacitación propuesto en matemáticas mentales entre los estudiantes de maestros que han sido capacitados en el programa. Se aplicó una prueba de fuerza matemática para profesores de matemáticas. Se utilizaron los medios estadísticos apropiados para derivar los resultados. Como resultado, existe una diferencia estadísticamente significativa en el nivel de (0.05) entre los puntajes promedio de los estudiantes de matemáticas del grupo experimental y los estudiantes del grupo de control. En conclusión, hay un claro impacto del programa de entrenamiento en la fuerza atlética de los maestros y las matemáticas mentales para los estudiantes.

Palabras clave: programa formativo, alumnos, profesores, matemáticas.

1. INTRODUCTION

The most countries have reviewed the educational systems in general, and in the system of the preparation and training of teachers in particular as responsible for the success or failure of any educational system, and being the main engine of the educational process, this has to pay attention to the numbers well, through programs aimed to provide him with modern educational knowledge and to acquire knowledge and professional skills in order to be able to carry out his real mission in the society and through the researchers' knowledge of the international tests and their results which are shared by most of the world countries and a number of Arab countries, TISSS tests, and

through the experience of the researchers noted the lack of learning and teaching mathematics, and that there are a large number of students in many countries do not have the ability to perform simple calculations in writing or mentally, 2004. The results of the Arab countries in the various TIMSS and PISA courses revealed that the students performed in mathematics below average in general, and the Arab attendance remained weak in the upper grades of the international standards scale (Sumeida and Najwa, 2014). The following:

What is the impact of building a training program based on international testing standards (TIMSS, PISA) in the athletic strength of math teachers and mental math students?

The importance of research: The importance of research can be clarified through the importance of theory and practical importance, as follows:

The theoretical importance: The theoretical importance of the current research is as follows:

1. The current research represents a response to international trends and standards in teacher training through modern training programs in which we can improve the level of in-service mathematics teachers and what changes can be made in their students.

2. The current era is characterized by rapid development and knowledge development. This knowledge development is one of the most important features of the present age. The need is important for the development of the teacher through training programs because it has the primary role of educating the students.

3. The scarcity of studies on modern international standards and trends in Iraq and the Arab countries. The researchers did not find a study on the construction of a program based on the criteria of international tests, athletic strength and mental mathematics. The current research is an attempt to define and train teachers on the criteria of these tests and its importance.

4. Building a training program based on the International Standards for Testing (TIMSS, PISA) to determine the extent of its reflection on the educational process, in terms of the mathematical strength of the teachers of mathematics, and the mental mathematics of their students.

Applied importance: Can be illustrated as follows:

1. Building a training program based on international standards and trends for the development of sports power and highlighting the importance of training for mathematics teachers in general.

2. Provide the field of education with a test of the mathematical strength of the teachers of mathematics, and a test of the mental mathematics of students.

3. This research can be useful and its results can build the program.

2. RESEARCH OBJECTIVES

The research aims to:

1. Building a proposed training program based on the International Testing Standards (TIMSS, PISA) for mathematics teachers.

2. Learn about the impact of the proposed training program on the athletic strength of mathematics teachers.

3. To identify the impact of the proposed training program on mental mathematics among students of teachers who have been trained in the program.

3. RESEARCH HYPOTHESES

In light of the research objectives, the following hypotheses were formulated:

1. There was no statistically significant difference at the level of significance (0.05) between the average scores of the mathematics teachers of the two experimental groups (who were trained on the training program prepared) and the officer (who did not train on the training program prepared) in the test of the post-sport force (AlKaabi & Jowmer, 2018).

2. There is no statistically significant difference at the level of significance (0.05) between the average scores of the mathematics teachers of the experimental group (who were trained according to the training program prepared) in the test of tribal sports force - post.

3. There was no statistically significant difference at the level of significance (0.05) between the average scores of the students of the two experimental groups (who trained their teachers on the training program prepared) and the officer (who did not train their teachers on the training program prepared) in the mental math test.

4. There is no statistically significant difference at the level of significance (0.05) between the average scores of the students of

the mathematics teachers of the experimental group (who were trained in the training program prepared) in the test of mental tribal - post.

Search limits

1. Teachers and teachers of mathematics for the first grade intermediate in the General Directorate of Education Baghdad / Karkh II.

2. Students and students of the first grade intermediate in middle and secondary schools for the daily study of the Directorate General of Education Baghdad / Karkh second year 2017-2018.

3. International Testing Standards (Tribes, 2014).

Definition of terms: The following is a definition of the meanings of the terms that appear in the body of this research:

4. METHODOLOGY

4.1 First: Training Program

1. UNESCO as the organized and planned activity for trainees to develop and develop their skills and knowledge. (Shehata et al., 2003) as:

A kind of training aimed at preparing individuals and training them in a particular field and developing their knowledge, skills and attitudes in accordance with the educational experiences of the trainees and their growth and their needs to develop a specific skill (Shehata et al., 2003: 76-77).

By studying the previous definitions, the two researchers define the training program in theory as a structured and planned activity consisting of a number of major step-by-step steps (planning, implementation, evaluation), which aims to develop trainees' performance for specific tasks by providing them with knowledge and skills in multiple training sessions, adding knowledge to their knowledge, to achieve a specific key goal at a specified time using the available means and techniques, and using content that is defined for that purpose organized by activities designed to achieve the specific goal. The researchers define it as the systematic effort that aims to change the knowledge, skills and thinking of the trainees and their mental abilities, which resulted in a number of training sessions prepared by the researchers of the mathematics teachers of the intermediate stage, which will provide expertise, knowledge, information and activities that are not available in the curriculum, In accordance with TIMSS, PISA, to train teachers.

4.2 Second: Standards defined by:

1. National Council of Teachers of Mathematics (NCTM, 2000) as terms that can be used to judge the quality of mathematics

curriculum or assessment methods, and what learners should understand from mathematical information and skills. Abbas as a description or explanation of what students should be able to learn in mathematics. In this sense, they describe the behavior that a student is supposed to perform as a result of his or her learning of mathematics (Abbas, 2007). The researchers define the criteria theoretically: phrases that can be used to judge what the learner should know and what he can do, from the mental and practical skills, what he should understand, mathematical skills, and the standards that relate to aspects and subjects in mathematics, Knowledge and skills, and formulated to describe a general skill, ability or goal. The researchers define it as: the criteria that govern the mathematics curriculum of content and process standards based on the TIMSS (PISA) international tests derived from the NCTM standards.

4.3 Third: Study of International Trends in Mathematics and Science TIMSS defined by:

1. Ministry of Education as a comprehensive global periodic study conducted every four years to measure the level of achievement of students in various types of curricula and educational practices and school environments, a project supervised by the International Association for Evaluation of Educational Achievement (IEA), based in Amsterdam, This study is located at Boston College in the United States of America and the DPC Treatment Center in Hamburg, Germany.

2. Knowledge and Human Development Authority as an international study that provides all concerned parties in the field of education and education accurate information on the performance trends by assessing the skills of students at the age of 15 years in three main areas are reading and irrigation.

3. Knowledge and Human Development Authority: An international study that provides all stakeholders in the educational and educational field with accurate information on performance trends by assessing the skills of 15-year-old students in three main areas: mathematics, science and reading. On the practical application of their skills in reading and writing or on the extrapolation and conclusion to what they learned from the basic skills, where it is held every three years, and focus in each session on one of the three areas, without neglecting the evaluation of students in the other fields (Knowledge and Human Development Authority). The researchers recognize the PISA as a collaborative effort of participating OECD members, as well as a number of other countries, and provide all stakeholders in the educational and pedagogical field with accurate information on performance trends by assessing the skills of students aged 15 In the three main areas of mathematics, science and reading, where the students' abilities to practice their reading and writing skills or to extrapolate to the basic skills they have learned are held every three years. The focus of each course is on one field the three T., without neglecting the evaluation of students in other areas. The

researchers define the International Standards for Testing (TIMSS, PISA) theoretically as a set of standard specifications defined by the International Trends in Science and Mathematics (TIMSS) and the PISA Study. These criteria include two dimensions: post-content and post- Mathematics. The researchers define the TIMSS and PISA standards as a set of standards set by the TIMSS and the PISA, which are based on the NCTM standards, The criteria are two dimensions: after content and after operations in mathematics, which will build a training program for the teachers of mathematics for the first grade intermediate through training sessions.

4.4 Fourth: the strength of sports known to each of:

NCTM as the maximum mathematical knowledge that students can employ in thinking and communicating mathematically and psychologically. NAEP as the student's ability to recognize and apply mathematical knowledge in its three dimensions (conceptual, procedural, and problematic), in the discovery, interdependence and mathematical reasoning. The researchers define mathematical power as theoretical: It is the total ability to collect mathematical knowledge and employ it in thinking, communication, reasoning, mathematical interdependence and problem solving, both mathematically and psychologically. The researchers know the mathematical strength of the athlete: the ability of the trainee (teacher) to employ mathematical knowledge in communication, interdependence and mathematical

reasoning, and measured in the degree to which the trainees will receive the test of mathematical strength to be prepared for this purpose.

5. RESULTS

5.1 Mental Math is defined by:

1. Gurganus as "the work of mathematics in the head without the use of paper and pen or any other aids" (Gurganus, 2007: 290)

2. Benjamin as: "Representing computational operations in the head, through which many problems can be resolved by mental computation and approximate estimate" (Benjamin, 2011: 11).

The two researchers define mental mathematics theoretically: that (performing computations in the head, without using paper and pen, or any other help, through which the solution of many problems by mental calculation and approximate estimate). The researchers define mental mental mathematics as: (The ability of first-grade students to perform mental computations, represented by mental computation and approximation, measured by the degree to which students will receive the mental math test to be prepared for this purpose).

5.2 Background Theory:

Training Programs: Training is a dynamic process that aims to change the information, experiences, performance methods, behavior and trends of trainees in order to enable them to exploit their potential and potential energies, which helps to raise their level of competence in the practice of their work in a systematic manner (Abuashah, 1981).

5.3 Steps of the training programs:

The first step is to take all the measures and procedures that the instructor undertakes by organizing the information and experience in order to achieve the educational objectives. The researcher has decided to build the training program in sequential steps in two basic stages: analysis and design. The analysis stage refers to the set of procedures, the characteristics of the trainees and the training needs in addition to the educational environment on which the goals are based. The planning step includes both analysis and design (Hassani, 2011). Step 2: Build the training program: Prepare the content of the tutorial, identify useful resources for the program, and choose the ways and means of the training program. Define the timetable for implementation and evaluation of the program, implementation of the program, including the following:

1. Prepare the content of the training program and identify useful resources for the program.

2. Selecting and preparing the ways and means of the training program.

3. Determine the timetable for the implementation and evaluation of the program (Alsakarna, 2011).

Step 3: Implementation of the training program: Determining the location and time of holding the training program in the design and construction phase of the program as specific times are allocated for each of the objectives of the training programs in a manner that ensures that the trainees are provided with all the information and skills related to the educational objective. All requirements must be provided and all conditions for the success of the training should be established, with the appropriate atmosphere to increase the trainees' ability to learn (Shukr, 2016). Step 4: Evaluation of the training program: Evaluation of training programs is one of the most difficult and complicated stages of the training process. It is concerned with developing the skills and performance of the trainees. The evaluation shows whether the training program is successful or not. And to know the shortcomings to avoid and develop, and use different models to evaluate the training, and although many references put the calendar as a final stage in the construction of training programs, the evaluation process begins in the early stages of preparation of the program, into two types:

Type one: implemented during the program and the objective of this type is to develop and overcome the difficulties facing the program.

Type 2: It is implemented after the end of the program and aims at knowing the achievement of the program for its predetermined objectives. (Alsakarna, 2011). International Standards: The criteria are divided into two parts:

- (Content Standards) these standards define the knowledge that students should know and describe what is in the mathematics book of mathematical topics and vocabulary.

- Process parameters describe the outcomes of the learning process and the use and acquisition of knowledge. It implements the parameters of the processes through any mathematical content. This allows the acquisition, access, use and relationship to the facts of life. This division does not mean that the mathematics curriculum is divided into two separate, we find that they overlap and complement each other (Abbas, 2007). The content and process standards can be clarified as follows:
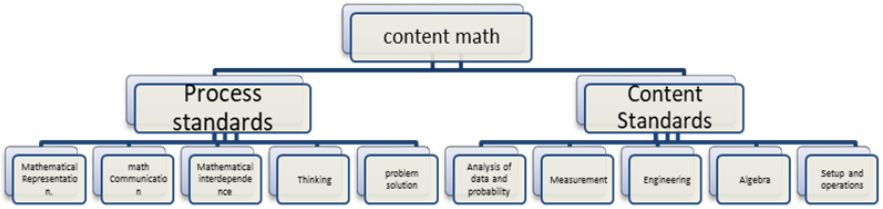
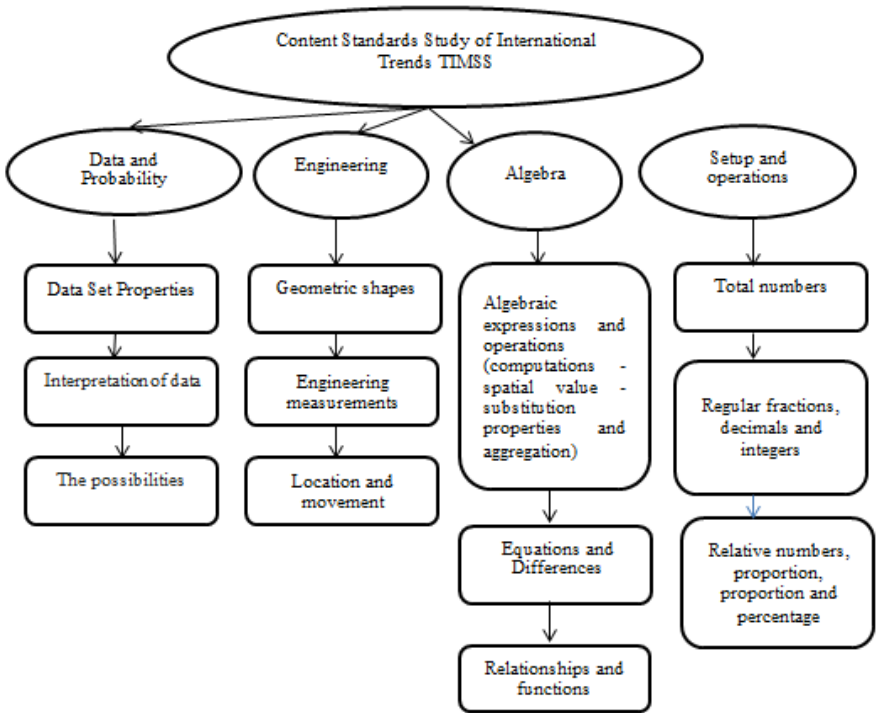Figure 1. The content and process standards

Figure 2. Study of International Trends TIMSS

Content standards can be clarified as follows:

Criteria for studying trends in the International Mathematics and Science Study 2015 (From the work of the researchers)

Each of the basic criteria has a number of sub-criteria, which will be illustrated as follows:

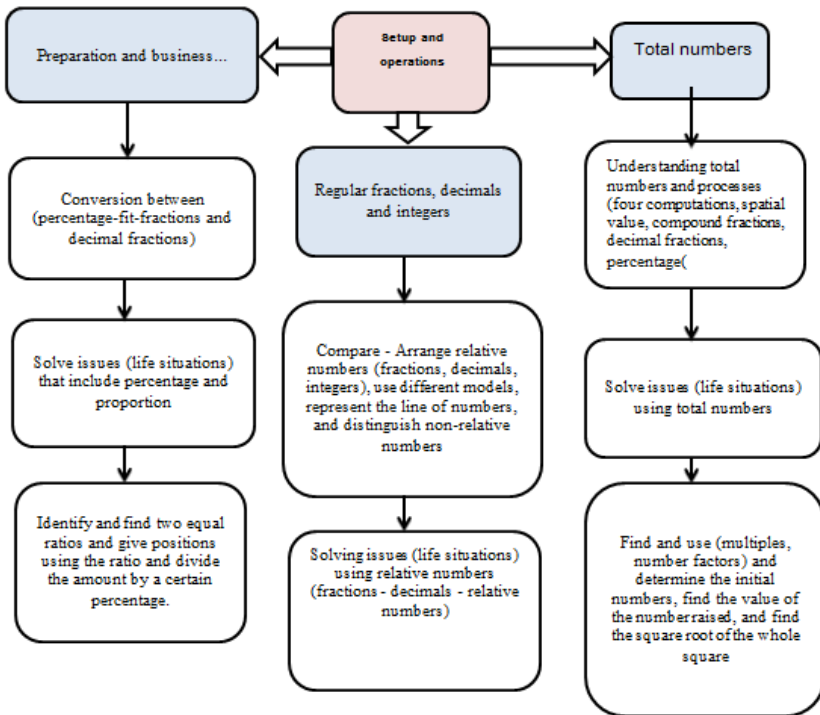1. Preparations and processes: Their secondary standards may be described as follows:

Figure 3. (From the work of the researchers)

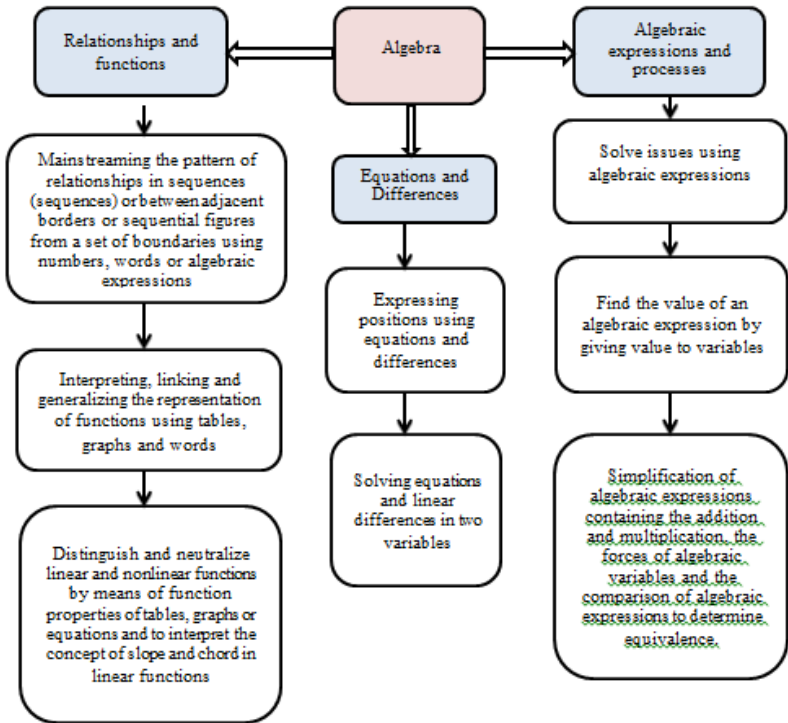2. Algebra: Its secondary standards may be described as follows:

Figure 4. (From the work of the researchers)

3. Engineering: The secondary criteria (components) can be clarified as follows:
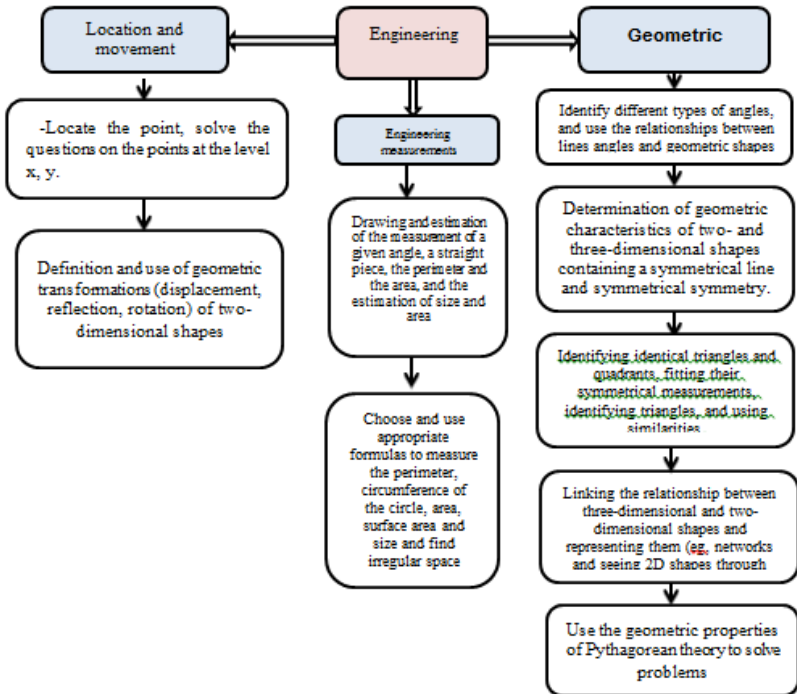
Figure 5. (From the work of the researchers)

4. Data and Probabilities: Their secondary standards (components) can be described as follow

Figure 6. (From the work of the researchers)

(The cognitive dimension) in learning mathematics for the eighth grade in the study of orientations in the International Study of Mathematics and Science
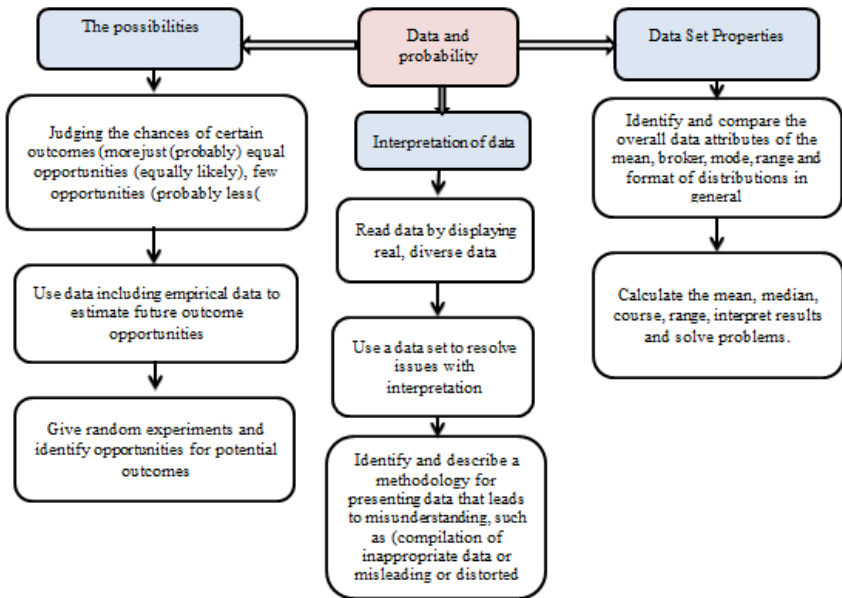
1. Knowledge: The field of knowledge can be defined as (remembering, understanding, calculating, extracting, measuring, classification and organization).

2. Application: The scope of the application can be clarified (selection, representation, model, application, solving routine issues).

3. Reasoning (causation): The field of reasoning can be detailed (analysis, generalization, privatization, integration and interconnection, interpretation, solving non-routine issues) (Mullis 2007). International Student Assessment Program (PISA): PISA math standards can be analyzed on two interrelated dimensions: the Mathematical Content Standard and the Sports Operations Standard, agencies:

6. DISCUSSION

6.1 Sports Content Standard: PISA sports content includes

1. PREPARATIONS AND PROCESSES: It may be one of the most widely used mathematics content standards in our world, because it involves quantification and the need to understand quantum logic (eg,)

2. Change and Relationships: All natural phenomena are characterized by change, and the world around us is full of temporary and permanent relationships,

3. Blanks and shapes: This standard covers a range of phenomena that we encounter everywhere (such as patterns, properties of shapes, patterns, and attitudes).

4. Probability and data: This criterion includes recognition of uncertainty and error in measurement, knowledge of probability, presentation and interpretation of data, as well as the formulation and interpretation of findings in situations where uncertainty is fundamental and the interpretation and evaluation of such results. Scientific may be wrong or it does not reach the truth, the standard of mathematical operations: The criterion of mathematical operations evaluates the efficiency of the student in the formulation of mathematical tasks and the use of mathematics and interpretation of mathematics and includes:

1. The formulation of mathematical tasks: This criterion includes identifying variables, simplifying hypotheses, providing structure and mathematical representations in order to understand or solve a particular problem or challenge.

2. Use of mathematics: It involves demonstrating and using facts, procedures and tools in obtaining mathematical solutions. This includes the use of algebraic expressions, the analysis of data in graphs, the development of mathematical description and interpretation, and the use of mathematical tools in problem solving.

3. Interpretation of mathematics involves thinking about mathematical solutions or results in the context of the problem. It also includes evaluating mathematical solutions or proof and reasoning in the context of the problem and determining whether the results are logical and meaningful in this case (Knowledge and Human Development Authority).

Thirdly, sports power is a non-traditional input in the evaluation of individuals in mathematics, as opposed to the traditional approach to their evaluation and achievement. He also pointed out that sports force includes three traditional skills related to the cognitive aspect, which represent achievement (conceptual knowledge, procedural knowledge, Problems) and three unconventional processes related to mathematical processes and represent new goals for mathematics (mathematical communication, mathematical interdependence, and mathematical reasoning). Fourth: Mental Math: Mental mathematics in the mathematics curriculum refers to mental mathematics to learn the reality of mental computation and the approximate estimation of arithmetic operations through the strategies of thinking across the stages (Teacher Gide- Grade3: 1: 1 and indicate the work of mathematics in the head without the use of paper Pen, or any other assistance, and students perceive the numbers and their relationships). Mental mathematics includes both mental computation and approximate estimate, as follows:

4.1 The mental account: An account that does not need to be used as a tool, and is described as a mental computation without

resorting to writing or any other external means as well as helping him in a deep understanding of the structure of numbers and their internal relationships, leading to the creation of new methods of processing numbers Morgan (1999) summarized the concepts and skills of mental computation in the ability to:

1. Translating the matter into an image or form is easy to deal with mentally.

2. Understand and apply spatial value concepts.

3. Use the substitution and assembly properties for the combination and multiplication operations.

4. Use the distribution property for multiplication and division.

5. Retrieve and remember the basic facts related to the four calculations.

6. Dealing with multiples and force number ten.

7. Composition and analysis of the preparation and expression in a variety of ways.

8. Retrieve and use a wide range of relationships between numbers, including correct numbers, fractions, decimal fractions and percentages (Morgan, 1999). 4.2 Approximate estimation:

The approximate estimate is to give an oral idea that is close to reality without using measuring instruments or to perform calculations accurately in paper and pen. It can be described as a sense of the spatial value of the number. This includes the sense of length, space, capacitance and time, and it can be described as bringing the number from a difficult number to a simple number using several methods, which is one of the most important basic skills which mathematics curricula in different countries of the world seek to provide to students (Badawi, 2007). There are three types of approximate estimation Mathematics and adopted by the researchers in the current research, namely:

1. Estimating answers to word problems in arithmetic, algebra and triangles.

2. Estimating the answers in the results of calculations.

3. Estimate the measurements of stuff (Frederick, 1986).

Previous Studies: In this section, the researchers present previous studies related to the subject of research, which contributed to enriching the research in a number of axes on the international testing standards (PISA, TIMSS) or one of the international tests, or studies that dealt with mathematical strength or mental mathematics.

Axis I: Studies on international testing standards (PISA, TIMSS) or one of the international tests

1. The study of the achievement of the TIMSS standards in the mathematics book for the eighth-grade students in Palestine, aimed at identifying the achievement of the TIMSS standards in the mathematics book for the eighth grade. Contents in the eighth-grade mathematics book.

2. The study of (thanks): The impact of a training program based on the skills contained in the international tests (TIMSS) in the achievement of middle school students and their appreciation of the scientific value of mathematics, aimed at identifying the impact of the program based on the mathematical skills included in the international tests (TIMSS). The achievement of middle school students and their assessment of the scientific value of mathematics, the study found that there is a difference D statistic for the benefit of the experimental group

The second axis: Studies on sports power

1. The impact of teaching on the strength of sports on the understanding of mathematical concepts among the eighth grade students in Jordan, aimed at investigating the impact of teaching according to the athletic strength, in understanding the mathematical concepts among the eighth grade students in basic. The study found that there is no statistically significant

difference between the mean averages of the conceptual comprehension levels of the students due to the teaching method (teaching according to the mathematical strength and the normal method).

2. The study of the impact of an educational program based on the athletic strength in the achievement and mathematical thinking of the seventh grade students in Nablus governorate. The aim was to investigate the effect of an educational program based on the athletic strength in the achievement and mathematical thinking of students. In the seventh grade in Nablus Governorate, the study found that there was a statistically significant difference between the averages of the female students' scores on the two achievement tests and mathematical thinking, and for the experimental group.

Axis III: Studies on mental mathematics

1. The study Barham (2008) was conducted in Kuwait, entitled Effectiveness of a training program in raising the ability of students in mental mathematics. The study aimed to evaluate the effectiveness of implementing a training program to teach mental strategies in raising students' ability in mental mathematics. Statistical ability of mental students before and after the experiment for both sexes and for the benefit of the experimental group.

2. Tamimi (2015) study was conducted in Iraq, entitled Training program according to the mental motivational strategies of mathematics teachers and their impact on mental mathematics and sports achievement of their students, aimed at learning the impact of the proposed training program on the mental mathematics of teachers and the collection of their students.

6.2 Experimental Design

Two experimental designs were used to validate search hypotheses:

1. Pre-Test, Post-Test experimental design of the two groups (experimental and control) for teachers and teachers of mathematics. The table below shows this:

Table 1. Experimental design of experimental and control groups for mathematics teachers

Measure the dependent variable	The dependent variable	Independent variable	Equivalence of the two groups	set
Post-sport force test	Sports power	training program	• Random selection • General characteristics • Test mental abilities	test
		…………	• Tribal sports force test • Years of service (experience (	exact

2. Pre-Test, Post-Test experimental design of the two groups (experimental and control) for the first grade students. The table below shows this:

Table 2. Experimental design of experimental and control groups for students

Measure the dependent variable	The dependent variable	Independent variable	Equivalence of the two groups	set
Post-mental mathematics test	Mental Mathematics	training program	• R andom	التجريبية
		....	• T ribal mental math test	الضابطة

6.3 Research community

1. The school community: The number of middle and secondary schools within the Directorate General of Baghdad Education / Karkh II is 153 middle schools and 90 secondary schools. The total number of middle and secondary schools is 243.

2. Teachers' society: The research community consists of teachers and teachers of mathematics for middle school in the middle and high school day schools of the Directorate General of Education Baghdad / Karkh II, where the number of teachers (271) teachers, and the number of teachers (604) (875).

3. Students' society: All students in the first grade intermediate school in the middle and secondary schools of the Directorate General of Education Baghdad Al-Karkh second for the academic year 2017-2018. The total number of students representing the research community reached 38918 students, distributed to: 21021 boys, Student, and the number of females reached (17897) students.

7. CONCLUSIONS

Research Sample: The research sample consists of two parts:

1. Sample of teachers and teachers of mathematics: They were selected randomly with the help of the Department of Preparation and Training in the Directorate General of Education Baghdad / Karkh II, and were randomly divided into lots (21) experimental, (20) officers.

2. Sample of Students: It consisted of (301) students for the experimental group and (275) students for the control group.

Control procedures: Before starting the experiment, the researchers determined what would affect the credibility of the results of the experiment, as follows:

First: Internal safety of experimental design

1. Adjustment procedures for teachers sample:

A. General characteristics

B. Test mental abilities

T. Test tribal sports force

W. Years of service (experience)

C. Statistical regression.

Second: External safety of experimental design

A. Measurement tools

B. Random

T. Pre-trial numbers.

W. Time of experiment implementation.

C. The teachers and teachers (trainees and trainees) continued their training during the course of the training.

Search tools

1. Test the strength of sports: The test of the strength of sports teachers of mathematics according to the following steps:

a. Objective of the test: The test aims to measure the athletic strength of the teachers of mathematics in secondary schools.

B. Determining the areas of mathematical strength: Through the researchers' knowledge of the literature and studies that dealt with different fields and many areas of mathematical strength, the following areas were identified: Mathematical communication, mathematical interdependence and mathematical reasoning.

T. Determining the content of the test: The preliminary image of the mathematical strength test, which consists of (40) paragraphs distributed on the sub-aspects of the main components of the test, the paragraphs were prepared through some mathematical problems and life situations that fit the subfields taken from the main areas. A syntactic test that combines objective and transitional questions.

W. The paragraphs of the test were presented in preliminary form to a number of arbitrators specialized in the methods of teaching mathematics and a number of supervisors and a number of teachers and teachers of mathematics, in order to find the apparent honesty, and in light of that modified some paragraphs, and some of them have been reformulated.

C. Formulation of Test Instructions: Clear and understandable instructions for mathematics teachers and teachers have been prepared.

H. Correction Instructions: A standard answer was given to all test subjects that the researchers relied on to correct the test by taking the opinions of a number of experts in the teaching methods of mathematics and mathematics.

E. The experiment was carried out on a sample of 50 students and teachers on 30/4/2017 in order to determine the clarity of the instructions as well as the clarity of the test paragraphs, the collection of new ideas for solving the paragraphs, measuring the time taken for testing, (The difficulty of test paragraphs, the discriminating force, the effectiveness of wrong alternatives), and the verification of cykometric properties: test validity (virtual, construction), test stability, fixation stability (stability over time, stability with another corrector). Dr. Final Test Application: The sport force test was applied to the research groups on 10/9/2017 and Baadi on 4/10/2017. Mental Math Test: The researchers prepared a test according to the following steps:

A. The purpose of the test: The test aims to measure the mental mathematics of male and female students of the research sample (students of the first grade intermediate) of the experimental and control groups.

B. Determining the areas of mental mathematics: Through the two researchers acquainted with the literature and previous studies that dealt with the fields of mental mathematics, and taking the views of a number of arbitrators, the following areas were identified: mental calculation, and approximate estimate.

T. Determining the content of the test: The preliminary image of the mental math test, which consists of (30) paragraphs, was distributed on the sub-aspects of the main components of the test.

W. Writing the paragraphs of the test: The paragraphs were prepared through some mathematical problems and life situations that fit with the components of the test, as each subfield has been put a number of paragraphs of the type of substantive paragraphs, and thus the total of the paragraphs of the test in its initial form (30) Arbitrators specialized in the methods of teaching mathematics in order to find the truthfulness.

C. Formulation of the test instructions: A clear, understandable and appropriate instruction was prepared for the level of the average first grade students. The instructions included the general objective of the test and how to answer it, and how to use the special answer papers.

H. Correction Instructions: A standard answer was given to all test subjects, which were based on the correctness of the test, given one score on the correct answer and zero for the wrong answer, and the total score of these questions was then set to 0-30.

E. Application of the test for the test: The mental math test was applied to a preliminary survey sample consisting of one of the students of the first grade of the average (30) students randomly selected from among the intermediate people (Hajar bin Adi for boys) on 2/5/2017, To determine the clarity of the test instructions and their paragraphs, to identify the weaknesses in terms of formulation and content, the suitability of the alternatives to the answer, and the time taken to answer the test. The test was applied on a second survey sample on 4/5/2017 consisting of (100) In order to conduct statistical analyzes and to know their level of difficulty and discriminatory power the effectiveness of alternatives.

Dr. Sincerity Test: We have found both honesty and virtual honesty construction.

Y. Final application of the test: The mental mathematics test was applied for the period from 5/10/2017 to 25/10/2017, and periodically from 2/1/2018 to 17/1/2018.

Fourth: Statistical means: The statistical program SPSS version 20 was used in statistical data processing, and the following statistical methods were used:

1. Difficulty factor for paragraphs (difficulty factor of objective paragraphs, difficulty coefficient of paragraphs).

2. The coefficient of discrimination (the discrimination equation for the substantive clauses, the discrimination equation for the domestic clauses)

3. Effectiveness of wrong alternatives

Cooper Cooper equation

5. Point by serial correlation coefficient

6. Equation of Kyudar Richard Sun-20 (KR-20

7. Use the statistical bag spss in the rest of the statistics.

View and discuss search results

The following is a list of search results:

1. The result of the hypothesis that There is no statistically significant difference at the level of significance (0.05) between the

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average scores of the mathematics teachers of the two experimental groups (who were trained in the training program prepared) and the officer (who did not train on the training program prepared) (Post-sport force).

Table 3

Level of significance 0.05	table U	Calculated U	$\bar{x}$ Ranks	S^2 variance	S standard deviation	$\bar{x}$ Arithmetic mean	no	set
Function	139	1.00	30.95	55.80	7.47	69.8	21	test
			10.55	21.07	4.59	47.3	20	exact

In order to verify this hypothesis, we find the value of the computed statistic (1), which is taken from the tabular statistic (139). Therefore, it is located in the rejection zone. Therefore, we reject the null hypothesis. We accept the alternative hypothesis. The difference is in favor of the experimental group.) Who were subject to a training program based on international test standards. (TISMS, PISA) to the mathematics teachers who were not subject to the training program in the post-athletics test. The researchers attribute the result to the inclusion in the training program of the NCTM standards and international test standards that are based on NCTM standards. And the correlation of activities to the main standards and sub-criteria. All this generated the interaction of the mathematics teachers (the experimental group) with the content and activities of the program.

2. There is no statistically significant difference at the level of significance (0.05) between the average scores of the mathematics teachers of the experimental group (who were trained according to the training program prepared) in the test of tribal sports force - post.

Table 4

Level of significance 0.5	W Table	W Calculated	W+	W-	$\bar{X}$ Ranks	S variance	standard deviation	$\bar{X}$ set	no	set
Function	52	3.89	209	1	1	62.25	7.89	36.1	20	test
					11	21.07	4.59	47.3		exact

To verify this hypothesis, the calculated value of the Wilkinson test for the control group was found to be 3.89 (the lower total value of the Lukoxen test) smaller than the nominal value of (52). We reject the null hypothesis and accept the alternative hypothesis. (36.1) is smaller than the arithmetic average of the post-test which is equal to (47.3). Therefore, the acceptance of the alternative hypothesis and from the observation of the table, we find that there are statistically significant differences between the pre-test and the post-test of the mathematics teachers (the control group) researcher N this result to global experience and maturity.

3. There was no statistically significant difference at the level of significance (0.05) between the average scores of the students of the two experimental groups (who trained their teachers on the training program prepared) and the officer (who did not train their teachers on the training program prepared) in the mental math test. In order to

verify this hypothesis, the arithmetic mean and the standard deviation of the students of the two groups were calculated. The mean of the students' scores (experimental group) was 15.02 and the standard deviation was 3.87. The arithmetic average of the control group scores was 10.67 and the standard deviation was 2.82), as shown in the following table:

Table 5

%95confidence interval for mean arithmetic		Standard error of arithmetic mean	S standard deviation	$\bar{X}$ Arithmetic mean	no	set
minimum	the highest rate					
3.79	4.91	0.22	3.87	15.02	301	test
		0.17	2.82	10.67	275	exact

When the Levin test was used to test the homogeneity of the two variables, the results showed that there was no statistically significant difference between the scores of the students of the mathematics teachers for the experimental and control groups. The score of Levin (F) at a level of significance was greater than the level of significance (0.05). When t-test was used for two independent samples to determine the significance of the difference between the average scores of students of mathematics teachers in the two groups of research, the results indicated a statistically significant difference between the average score of the students of the experimental group mathematics teachers and the average score of the mathematics students control group , and for Tal (T) (15.28) at the level of significance (0.00), which is

smaller than the level of significance adopted (0.05), thus rejecting the null hypothesis and accepting the alternative hypothesis, i.e., the superiority of the students of the experimental mathematics teachers who underwent the training program Students of the mathematics teachers in the control group who did not undergo the training program in the mental mathematics test. The researchers attributed the result to include the training program to the content suitable for its objectives and sessions, and the interaction of the teachers of the experimental group with the content of the program and the reflection of the program at the level of students in general, as shown in the following table:

Table 6

Statistical significance at 0.05	The t-test is equal to the mean		Levin test (F) to equalize the two differences		variable
	Significance of the parties	T	Significance	F	
function	0.00	15.28	0.05	32.71	Mental Math Test

4. There is no statistically significant difference at the level of significance (0.05) between the average scores of the students of the mathematics teachers of the experimental group (who were trained in the training program prepared) in the test of the mental tribal - post.

Table 7

Statistical significance at 0.05	%95confidence interval for mean arithmetic		Standard error	standard deviation	SMA	Students of the experimental group teachers
		minimum				
دالة	function	4.79	0.19	3.35	10.03	after
			0.22	3.87	15.01	before

From the above table, we observe that the differences between the mathematical mean scores of the students of the mathematics teachers (experimental group) in the tribal mental test and the t-test of two interrelated samples to test the significance of the differences between the grades are statistically significant. The level of significance is (0.00), which is less than the accepted significance level (0.05), thus rejecting the null hypothesis and accepting the alternative hypothesis. It is clear that the differences in favor of the post-test. The researchers attribute this result to include the training program in many activities, M Ideas suffered by students, also included many mental processes, and different levels. In order to determine the effect of the training program on mental math for students, the researchers used the ETA square test (Π 2) to calculate the effect of the independent variable (training program) in the dependent variable (mental mathematics)

Table 8

The amou the effect	Values	Values	The depe variable	Independent variable
big	1.29	0.289	Mental Mathematics	The training program is based on international test standards

The above table shows that the magnitude of the effect of the training program on mental mathematics is significant, because the value of d (1.29) is greater than 0.8, which indicates the impact of the mental mathematics training program for mathematics students.

The results showed the following:

1. There is a clear impact of the training program on the athletic strength of teachers.

2. There is a clear impact of the training program on mental math for students.

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