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The Effectiveness of the Instrumental Enrichment Strategy in the Mental Mathematics for the Fifth primary Grade Female pupils

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Abstract

The current study aimed at knowing the effectiveness of the Instrumental Enrichment Strategy in the Mathematics Mental for the Fifth primary Grade Female pupils. The sample of the study consisted of (57) female students from the fifth-grade primary school, the sample of the study was randomly divided into two groups, one of which was the experimental group consisted of (29) pupils and another was control group consisted of (28) pupils. The experimental design with the partial control was used for two equivalent groups with a post-test. A test of mental mathematics was adopted, consisting of (30) paragraphs of a multiple-choice type with four alternatives, divided into three components (Mental Computation, Rough Estimation, Mathematical intuition). The reliability of the tool and the Psychometric properties were verified, and the stability was calculated using Kuder-Richardson 20 (K-R20), equation. The results were processed using the t-test for two independent samples and the Mac Gujian Effectiveness Equation was also used. The results showed there is statistically significant difference at the level of significance (0.05) between the mean of two groups (experimental and control) in the mental mathematics test.

Key Words: Instrumental Enrichment , Mental Mathematics.

La efectividad de la estrategia de enriquecimiento instrumental en la matemática mental para las alumnas de quinto grado de primaria

Resumen

El presente estudio tuvo como objetivo conocer la efectividad de la Estrategia de Enriquecimiento Instrumental en el Mental de Matemáticas para las alumnas de quinto grado de primaria.

La muestra del estudio consistió en (57) alumnas de la escuela primaria de quinto grado, la muestra del estudio se dividió aleatoriamente en dos grupos, uno de los cuales era el grupo experimental compuesto por (29) alumnos y otro era el grupo control consistió en (28) alumnos. El diseño experimental con el control parcial se utilizó para dos grupos equivalentes con una prueba posterior. Se adoptó una prueba de matemática mental, que consta de (30) párrafos de un tipo de opción múltiple con cuatro alternativas, divididos en tres componentes (cálculo mental, estimación aproximada, intuición matemática). Se verificó la fiabilidad de la herramienta y las propiedades psicométricas, y se calculó la estabilidad utilizando la ecuación de Kuder-Richardson 20 (K-R20). Los resultados se procesaron usando la prueba t para dos muestras independientes y también se usó la ecuación de efectividad Mac Gujian. Los resultados mostraron que hay una diferencia estadísticamente significativa en el nivel de significancia (0.05) entre la media de dos grupos (experimental y control) en la prueba de matemática mental.

Palabras clave: enriquecimiento instrumental, matemática mental.

Chapter One (definition of the study)

Introduction

Mathematics is one of the basic pillars of any scientific progress. It is considered one of the most important subjects to contain knowledge and skills that help students to think to confront different situations. Mathematics occupies the prominent place among other subjects for many considerations. The most important of these studies is the development of mental abilities As well as the acquisition of mathematical skills that help study the other materials and their applications are involved in different life sit-

uations (Obaid and others, 1989: 40). As the strategy of Vasiliy enrichment is one of the strategies that have been accepted and appreciated by emphasizing the ideas of cognitive theory, which emphasizes the role of the student active in building knowledge by linking his past experiences and new experiences and try to solve problems and increase the ability to think, as the main goal is to help learners To learn and increase their ability to adapt to the environment by changing their cognitive structure and acquiring new knowledge skills (Attifa and Aida, 2011: 452). The goal of mental mathematics is to solve the problems facing the individual without writing or using the paper and pencil, since the individual must be able to see the problem and how to solve it and that will be able to acquire skill (Benjamin, 2011: 21) Calculations are no less important than the importance of calculations that require the use of paper and pen and that many of the calculations that face the learners in their daily lives need to use mental mathematics in order to obtain the accurate answers in addition to the speed of the processes in their minds Benjamin, 2011: 1-2). Mental mathematics must therefore be a part Constant in mathematics education in primary and intermediate stages (Teacher Gide- Grade3,2008: 1).
Thus, the Vasiliy enrichment strategy was used to teach mathematics in order to stimulate mental mathematics among fifth graders.
the study Problem :

The weakness in mathematics is clearly expressed by teachers and teachers at all levels of education and is recognized by parents, supervisors and educational athletes. This weakness is clearly manifested in the calculation based on the numbers and processes on them. This led to the adoption of the learners on the procedures and mechanical skills, neglect of understanding and neglect of thinking, (Kanani, 2009: 2). The researcher experienced a decline in the practice of their students of mental mathematics in their study of mathematics through the distribution of an open questionnaire to a number of teachers and teachers of mathematics with experience in the Many schools in the province of Baghdad / Rusafa II shows that learners are able to think, but the traditional teaching, which focuses on conservation and memorization of facts and computational procedures lead to failure to develop and develop their mental and practical intuition different and many of the Iraqi studies agreed on the weakness of the abilities of learners in the approximate estimate and mental calculation These include Saleh (2008) and Al-Naimi (2009). In light of the above we see the use of one of the strategies that emerge from the theory of knowledge may contribute to help students to overcome the weakness in mental

mathematics have chosen the strategy of enrichment Wesili closely linked to the thinking of learners and make the learner an active element in the search for information by various means possible.

In view of the above, the problem of the present study is formulated in answering the following question:

What is the effectiveness of the Vasiliy enrichment strategy in the mental math of the fifth graders?

the importance of studying

The importance of the present study stems from the following:

1 - The strategy of enrichment Wesili to acquire effective methods that contribute to the discovery of information and methods of solution and to overcome the deficiencies and weaknesses in the thinking skills of learners.

2 - The importance of mental mathematics as it is the basis for conducting calculations using certain strategies and relying on thinking and self-experience in order to keep pace with progress and development in the educational process.

3 - may be helpful to the curriculum developers and specialists in the field of education and by reviewing the curriculum of mathematics and development through the addition of enrichment activities in accordance with the strategy of enrichment Vasily.

4 - This study may benefit teachers and teachers in their findings, recommendations and proposals in the development of methods and methods of teaching through their knowledge of mental mathematics and its importance in order to avoid the shortcomings of the learners.

Purpose of the study

The present study aims to identify:

"The Effectiveness of the Vasiliy Literacy Strategy in Mental Mathematics among Fifth Grade Elementary School Students".

The hypothesis of the study

To achieve the objective of the study, the following zero hypothesis was developed:

ال There is no statistically significant difference (0.05) among the average scores of students (who will be taught according to the Wesley enrichment strategy and who will be taught according to the usual method) in the mental math test.

The limits of the study

1 - pupils of the fifth grade primary in primary schools for girls affiliated to the General Directorate of Education Baghdad / Rusafa II.

2- The second semester of the academic year (2018-2019).
3) The content of four chapters of the book of mathematics (Chapter 6: Engineering Problems), (Chapter VII: Ordinary Fractures), (Chapter 8: Operations on Ordinary Fractures), (Chapter IX: Decimal Fractions).
4. Components of mental mathematics (mental computation, approximation, mathematical intuition).
Terminology
- Effectiveness: is defined as the rate of profit achieved by the teaching of the strategy of enrichment in the learning of the students of the experimental group of mental mathematics, which is the comparison of the average score in the pre-test and tribal tests of the experimental group compared to the criterion of effectiveness.
- Wesley enrichment strategy: is defined as a series of procedures and activities of the type of paper and pen prepared by the researcher in advance and provide students in the experimental group when teaching the article (under study) in order to develop their mental skills.
- Mental Mathematics: It is defined as the ability of the pupils of the fifth grade to perform mental computations, namely mental computation and approximate estimate and mathematical intuition measured by the grades that will be obtained by students in the test of mental mental distance that was prepared for that purpose.
Chapter Two (theoretical framework and previous studies)
• Vasyl enrichment strategy

The Wassili enrichment program has been designed for more than 40 years by the world's most famous Reuben Feuerstein. The program was designed to be used with late teens and then applied to the gifted, as well as to those with dyslexia and adult learners. The program has changed the way they think Formation of knowledge, because Vasiliy enrichment is a learning learning strategy in which Furstein sees that people are able to modify the way they think through radical restructuring of the cognitive system (Jabir, 2010: 73).

In 1980, this program was used as a strategy. The aim of this strategy is to help learners learn, increase their ability to adapt to the environment, and transform teaching from information teaching to developing their mental skills and to understand and overcome the problems they face today and in the future. 134).
This strategy is based on the assumption that
1- The intelligence is a learning and adaptive ability. This strategy includes a series of enrichment activities related to problem solving development

and special exercises that are active from the learning process. This strategy can benefit the secondary and basic students. According to this strategy, Preparation, design and evaluation, depending on the individual's efforts, and then these exercises are followed by a process of enrichment (Nofal, 2010: 21).

2 - Increasing or intensifying the provision of information or skills in different ways, such as training activities and educational practices performed by students in the classroom, which enhance the student acquisition based on several factors, including learning methods for students and different teaching methods and the nature of educational content (League, 2012: 34).

3 - The strategy of enriching Vasiliy several exercises that require a wide range of mental processes and thinking processes (Jaber, 2010: 73).

Teaching procedures with the facilitation strategy:

The study followed a series of procedures when using the strategy of enrichment and facilitation in teaching as follows:

1. The planning phase of the lesson: At this stage, the procedural objectives of the lesson and the learning aspects associated with the lesson are determined, along with preparing the lesson plan, organizing the lesson time, determining the enrichment methods to be used in the lesson and identifying the examples used as an application in the educational situation and other situations of life. Daily.

2 - stage of implementation of the lesson: This phase includes five main steps are as follows:

The teacher presents the behavioral goals associated with the exercises practiced by the learners in the classroom, and then identifies the problems that will solve them, which revolves around the subject of the lesson, while ensuring their understanding and understanding of the terms and concepts and instructions for the lesson and the teacher stimulate motivation and interest of learners and attract their attention to the lesson.

B. Independent Work: Each learner will resolve the activities of the lesson in the activities booklet. The teacher should provide individual assistance to each learner by providing them with the keys to solving the activities. This encourages them to make the maximum effort possible in their work and thus inspires them with self-confidence while continuing their work successfully while avoiding attempts to frustrate them during the dissolution of activities.

C - Discussion: The teacher will discuss with the learners the solutions they have reached and apply the concepts associated with studying in new

positions after the learners have taken the time to adjust their answers and to find the right solution and encourage them to participate positively in the discussion.

D. Summary: The teacher summarizes the lesson by presenting its objectives and main topics and writing them on the blackboard.

E - Calendar: The teacher assesses the behavioral goals he has identified in advance to know the level of learners and their progress, and thus can know the contribution of the strategy of enrichment and facilitation in improving their educational level (Mr., 2018: 141-142).

Wassili enrichment strategy activities:

1. Transcendental relations: In which the learner is required to derive new relationships from the relationships that exist before him according to a specific rule of relations (<, =, ≠), which enables him to translate verbal problems into symbols and relationships.

2 - Time relationships: The activity of time relationships develops the ability of the learner to use time concepts to describe their events. In this activity, the learner offers a series of exercises that are not gradual in their level of difficulty because they are highly abstracted, given some data about time, speed or distance. Determine the relationship between these variables.

3 - Organizing the points: In this activity, the learner offers a variety of geometric shapes gradient in complexity and difficulty, whether separate or overlapping boxes and triangles, etc., and then we present these forms in the form of a set of separate points, and the learner to use each point once Only to form the form and is not repeated in another form.

4. Comparisons: The teacher introduces a series of exercises that are gradual in their complexity and are worded and photographed. They include two forms, two topics, two events, etc., and then the learner is asked to identify the similarities and differences between these forms, subjects or events.

5 - orientation in the one-dimensional space: It offers the learner a set of exercises graded in difficulty as if

Specifies the location of a set of points for a set of shares.

6- Analytical realization: It provides the learner with a total design and a set of parts. The learner is asked to choose the parts that are the design of the kidney or to display the overall design (the model) and its component parts and ask the learner to identify the wrong parts and replace them with the correct parts.

7 - Illustrations: It offers the learner a set of images that present a particular

problem so that the problem can be noticed and diagnosed and find solutions to them.
8 - Family relations: It provides the learner a set of exercises formulated in the form of verbal or schematic or symbolic uses family relations activity system of relations to connect things and teach the learner relations between concepts and events.
9 - Classification: It provides the learner a set of images or shapes or symbols and asked him to put in different groups and give a name or identify the characteristics or rules that were based on classification or classification according to the characteristics or rules he has identified, and all this is based on Common common rule between these images or shapes or symbols.
10 - Numerical sequences: It gives the learner incomplete sequences and asks him to infer the basis on which the sequence and then complete in accordance with the rule.
11 - Instructions: The learner is given a set of instructions and ask him to read it well was drawing a particular form in the light of certain instructions or review the solution and correct if they are wrong.
12 - orientation in the space of two - dimension: This activity aims to develop the ability of learners to the possibility of spatial relations in the vacuum two - dimensional development through the concepts (up, down, beside, between, above, below, below).
13 - Orientation in the three-dimensional vacuum: This activity aims to develop the ability of learners to create spatial relations in a three-dimensional vacuum through the development of concepts (North, South, East, West).
14. Rationale: This activity encourages the learner to think in a productive manner, in which he presents a set of logical forms, events or issues and asks him to infer new logical relationships.
15 - Design of stencil: This activity requires a series of steps, the possibility of distinguishing all to the structures of the parts which requires active mental structures, as well as rely on logic to distinguish structures.
Feuerstein, R.S, 2006: 560-569); Mr., 2018: 136-141)
• Mental Mathematics

Mental mathematics shows how mathematics works in the head without the use of paper, pencil, or any other auxiliary tool. It is not an innate gift possessed by all people but a skill that anyone can learn and possess and thus teach to others (Badawi, 2009: 290). Mental mathematics in the ability to solve the problems facing the individual without writing or using the

paper and pen, as the individual must be able to see the problem and how to solve it and will be able to acquire skill.
(Benjamin, 2011: 21)
Mental math is defined as the work of mathematics mentally without the use of paper, pen or other aids (Gurganus, 2007: 290).) It also employs mental computation and approximation and everything related to conducting mathematical exercises mentally without the need to use arithmetic tools, paper and pencil using Strategies to arrive at accurate or approximate results "(Draft- September, 2006: 1).
• Mental calculation:

In the mid-nineteenth century, mental computation was an integral and integral part of the mathematics curriculum, as it included oral exercises used to solve problems that required multiple steps. In the first half of the 20th century, mental computation was understood as "the ability to conduct operations without The use of paper and pen ", and currently the possibility of the individual to reach a controlled result using his mental abilities (Kennedy, 1980: 81).
McIntosh (2005) defines it as the calculation performed entirely in the head (mind), the answer is written only in McIntosh, 2005: 5). There is a difference between mental and verbal arithmetic where mental arithmetic refers to a practical outcome of operations Or solve the issue mentally without the use of writing, where it needs effort and mental cities. The oral account is characterized by the mechanism and retrieval as in keeping the beating table (Tamimi, 2018: 26).
Advantages of mental computation:
- Breaks the barrier of fear of mathematics and improves the performance of the student's mind.
- Demonstrates to students the relationship between numbers.
- The economy is in a time where it takes a short time to reach the output.
- The teacher through the mental account can reveal the ability of each student and his ability to think and creativity.
- Used as gas and games arithmetic students scramble in order to reach the output, and is also a recreational means used by the teacher when students strike boredom.

- Help students to think freely, and follow-up student to solve his colleagues develop the ability to think.
(Turkestani, 2006: 27)
- Used as a means to develop thinking, intuition and generalization based

on conceptual understanding.
Heirdsfield, 2000: 1)
• Approximate estimate of Rough Estimate

Approximate approximation is one of the most important topics for a major position in mathematics. Sometimes we do not care about the exact answer of the question. We are interested in the extent to which the answer or close to the exact answer is. If, for example, students are asked to estimate the height of a door, Sleeping man in his life there is no need to start measuring the height of the building or calculate the number of hours that sleep man and hence we adopt the principle of appreciation, which is based on logical mathematical basis (Jaber, 2007: 177).

Approximate rating features:
- It is one skill practiced by every person daily.
- increases the motivation of learners towards learning.
- It is used as an aid for accurate calculations.
- Helps to create positive attitudes among learners.
- Used as an aid in clarifying and understanding some mathematical concepts.
- Helps to develop problem solving skills.

(Mokdadi and Ali, 2003: 73)
I approximate estimate:
1 - Ability to estimate the answers to word problems in arithmetic, algebra and triangles.
2 - Ability to estimate the answers to the results of calculations.
3-Ability to estimate stuff measurements.
Bell, 1986: 120)
Approximation and its relation to approximate estimation:
1. In approximation, the mathematical approximation rule is used, and the approximate approximation is self-employed and is also edited and unrestricted.
2 - approximation depends on the simplification and speed of remembering and comparison, that it may be an end in itself or may be the goal of the approximate estimate of a specific answer.
3 - The estimate is associated with a single number, but the approximate estimate is associated with more than a number.
4. Approximation is about a certain number rounded to reach a particular objective or result. Approximate estimation is related to all measurement types such as angles, angles and spaces, as well as to the person's view of objects without the use of measuring instruments.

5 - highlights the importance of approximation and approximate estimate that they help the individual to deliver products and judgments and opinions that are close to reality quickly and efficiently.
(Mashhadani and Rahim, 2015: 148)
• Mathematical Intuition
Stages of intuition:
Bowers and others (Bowers et al., 1990) explained that intuition has two phases:
- The first stage: The stage is called directed and includes cognition and logical link and coherence, which guide the thought towards the most implicit realization of this interdependence.
The second phase is called an integrative stage of intuition and involves entering the subconscious as an appropriate instance of that connection and occurs when the individual moves from the stage of feeling or consciousness. It is referred to as an integrative stage of intuition or intuition flash (Qatami, Triumph, 2007: 67).
The role of the teacher in the development of intuition:
1 - It is necessary to believe that intuition is a natural ability of all students so that they can be developed and improved by use, and the beginning of their education guessing and by developing this ability the student will be sure of the results obtained.
2 - The teacher must make the student in a state of relaxation because intuition does not correspond to anxiety.
3 - The teacher must respect the perceptions of his students and their fantasies and take them seriously and discuss them in everything they ask.
4 - to develop the teacher accumulated amount of knowledge of students by providing them with diverse sources that relate to that knowledge and not make the purpose of the book content only.
5 - to develop pupils with general thinking skills.
6 - the need for the attention of the teacher to make the student imagine the concept that is intended to teach them.
(Mawla, 2009: 234).
Hypotheses of Intuitive Thinking:
Among Brunner (1963), many hypotheses of intuition include:
Intuitive thinking is a hypothetical concept, evidenced by the results reached by the intuitive thinker in solving a problem.
- Intuitive thinking encourages speculation so that the learner reaches it through intelligent guesswork.
- Hinders learners' use of this type of thinking when teachers seek to get

the right answers and reject the wrong answers.
- The educational conditions provided by the teacher have an effect in promoting intuition.
- Intuitive thinking develops among learners if the thinking of their teachers is intuition.
- The teacher can use instead of routine and traditional questions that require specific answers questions that are subject to speculation for the development of intuitive thinking.
- Exploratory thinking contributes to the ability to train learners to think intuitively.
Intuitive thinking contributes to increasing the self-confidence of the learner and his ability to solve his problems and achieve his goals.
- The principle of reward and punishment in blocking intuition thinking among learners.
- Educational material and textbook similar to the responses of learners and their thinking and hinder their intuitive thinking.
(Rizouki et al., 2016: 160-161)

• Previous studies:

First: Studies related to the strategy of rich enrichment:

The study of Kloppers (2010), conducted in South Africa, aimed at understanding the effect of the Worsley enrichment program on the development of the cognitive skills of mathematics teachers. The study sample consisted of (24) teachers of the second year. The study concluded the obvious effect of the Wesley enrichment program in the development of cognitive skills in Math Teachers Second Year.

The study of Al-Ruwaili (2012), which was conducted in Saudi Arabia, aimed at understanding the effect of the use of the Vasiliy enrichment strategy in teaching the unit of geometry and spatial reasoning on achievement and developing the mathematical thinking skills of the second grade students. The sample consisted of (27) second grade students In the mean, the study concluded the clear effect of the Vasiliy enrichment strategy on achievement and the development of mathematical thinking skills for second graders.

The study of Abdul Salam (2015), which was conducted in Egypt, aimed to find out the effect of a proposed program based on classical enrichment in the teaching of mathematics on the development of some mathematical concepts and life skills among the gifted students in the preparatory stage. The study sample consisted of 87 students of the stage Preparatory, the study concluded the clear effect of the strategy of Wassili enrichment on

the development of some mathematical concepts and life skills of students in the upper secondary school,

Second: Studies related to mental mathematics or one of its components

The study of Braham (2008) was conducted in Kuwait to find out the effectiveness of implementing a training program to teach mental strategies in increasing the ability of students in mental mathematics. The study sample consisted of 166 students. The study concluded the obvious effect of the training program in raising students' ability in mathematics Mind.

The study of Tamimi (2015) conducted in Iraq was aimed at finding out the effect of a proposed training program according to the strategies of mental motivation in mental mathematics for mathematics teachers and sports achievement in their students. The study sample consisted of 16 teachers and 535 students. Course for the mathematics math training program for mathematics teachers and the mathematical achievement of their students.

The 2013 study conducted in Iraq aimed to build a training program based on the International Testing Standards (TIMSS) and its impact on the mathematical strength of the teachers of mathematics and mental mathematics for their students. The study sample consisted of (41) teachers and (301) The study concluded the obvious impact of the training program on the mathematical strength of the math and math teachers of their students. The study of Nasir (2013) conducted in Iraq was aimed at the effectiveness of brainstorming and recreational mathematics in the achievement and development of mathematical intuition among the first grade students. The study sample consisted of 126 students. The study concluded the clear effect of brainstorming and recreational mathematics in achievement and development of intuition Mathematics for first grade students.

Comment on previous studies

It is clear from the presentation of previous studies:

- All the studies that dealt with the strategy of enrichment Wassili proved successful in several subjects, but it was not previously tried in the teaching of mathematics in Iraq, according to the researcher.
- There was no study examined in the variables of the study (the strategy of Vasili enrichment and mental mathematics) together, according to the researcher's knowledge.

Chapter Three (Study Methodology and Procedures)

• Methodology of the study: The experimental design was adopted with the partial control of two parallel groups with the post-test as shown in the following table:

Table (1) Experimental design adopted in the study

The Dependent variable	The Independent variable	Equivalence	the group
Mental Mathematics	Instrumental Enrichment Strategy	Intelligence Previous Knowledge Previous achievement in math Mental Mathematics	Experimental
	The usual method		Control

• Study community

The society of the current study consists of pupils of the fifth grade of primary school in the General Directorate of Education of Rusafa second year of the academic year (2018-2019), the number of (216148) students and distributers on (72) schools, and obtained the approval of the Directorate to facilitate the study study for the experiment In one of her schools.

• The study sample

The school of Abu Dhar al-Ghafari Primary School was chosen deliberately to represent the sample of the study. It was found that the school consisted of two divisions for the fifth grade. The random sampling method was chosen to represent the experimental group and the A to represent the control group. Finally, (57) students distributed on (29) experimental and (28) officer, and verified the equivalence of the study groups in the variables extraneous and the results are shown in the following table:

Table (2)

T value		Control		Experimental		the group
Table	Calculated	Standard deviation	Arithmetic Mean	Standard deviation	Arithmetic Mean	Equivalence variables
2	0,889	6,304	14,43	4,235	15,69	Intelligence
2	0,944	2,776	8,68	2,553	9,34	Previous Knowledge
2	0,483	20,111	65,79	19,859	68,34	Previous achievement
2	0,423	1,834	8,57	2,111	8,79	Mental Mathematics

Non-D at level (0.05) and degree of freedom 55

• Study materials

1 - Determination of the scientific material: The article to be taught to the students of the study sample is the sixth chapter, chapter VII, chapter VIII,

chapter IX of the book of mathematics to be taught for the academic year (2018-2019).

2. Identifying Behavioral Goals: Behavioral objectives were formulated based on the content of the scientific material for the content of mathematics. The results were 142 according to Bloom's classification in the cognitive field and the six levels (recall, comprehension, application, analysis, composition, To a group of experts in the methods of teaching mathematics to express their views on the extent of clarity and formulation and relevance to the levels of knowledge, and was modified on some of them as approved by the arbitrators and retained all behavioral goals.

3 - Preparation of teaching plans: The preparation of teaching plans according to the strategy of enrichment of the experimental group and the other according to the usual method of the control group, and was presented two models of plans on a number of arbitrators.

4 - Preparation of a booklet of activities for the enrichment of girls: A booklet was prepared for the activities of enrichment taking into account the following:

- Enrichment activities should be linked to the content and objectives of the four chapters (under trial) from the mathematics book for the fifth grade.
- The activities should be commensurate with the levels of the students.

A model of these activities was presented to a group of arbitrators in the methods of teaching mathematics. Their views and observations were used to modify these activities.

5- Study tool (mental math test):

- Determination of the objective of the test: The test aims to measure the mental mathematics in (students of the study sample).
- Determination of the components of mental mathematics: Through the review of the opinion of the arbitrators on the components of mental mathematics and the researcher to study the studies on the components of mental mathematics such as study (Tamimi, 2015) and the study (Ameri, 2018), was based on the following components (mental calculation, approximation, intuition Riyadi).
- Determination of the content of the test: Through the procedural definition adopted by the researcher, and after reviewing many of the local and Arabic studies, the mental math test was prepared in light of its three components (mental computation, approximation, mathematical intuition).
- The formulation of the test paragraphs: After the components of mental mathematics were determined, the formulation of the test paragraphs was based on a set of sources and previous studies that dealt with mental math-

ematics. The test was composed of (30) objective paragraphs. The principle of unanimity was adopted in the opinion of experts as a criterion of validity Paragraphs Accept the paragraph if approved by (80%) and more of the experts, as well as ensure the test instructions that explain to the girls how to answer the paragraphs.

Virtual honesty

The test paragraphs were presented to a number of arbitrators in the teaching methods of mathematics. The percentage of the experts' opinions was based on 80% and above. In the light of their observations, some paragraphs were modified and all paragraphs were retained.

- Application of the test on the first survey sample: To ensure the clarity of the test instructions and the clarity of the paragraphs and their suitability to the sample of the study and the duration of the test, the test was applied to a sample survey of (20) students of the study sample was randomly selected and the time of response was recorded for all students The average test time was 55 minutes. The test instructions were clear and the sentences were understandable in terms of the number of students' questions.

The test was applied again on a sample of (100) students (non-study sample). The answers were corrected and the grades were then ranked in descending order and 27% higher and 27% lower were selected for the analysis of the test.

Difficulty factor for paragraphs: The difficulty factor was calculated for each of the test paragraphs. The difficulty coefficients ranged from 0.31 to 0.74, which is acceptable.

The coefficient of discrimination for paragraphs: The coefficient of discrimination of paragraphs was calculated and found to be between (0.30 - 0.70). This means that all paragraphs have the ability to distinguish between the students of the research sample.

The effectiveness of the wrong alternatives: The effectiveness of the wrong alternatives was calculated for each paragraph of the test. The effectiveness of the wrong alternatives was found to be negative and therefore it was decided to keep the alternatives unchanged.

Believe the test:

- Validation of internal consistency (sincerity of construction) The consistency of internal consistency was found through the relationship of each paragraph to the overall grade of the test:

The correlation values of each grade were calculated with the total score of the test and ranged from 0.30 to 0.41. Comparing the values of the calculated correlation coefficients with the value of the correlation coefficient, it

was found that the value of the calculated correlation coefficients is greater than the value of the correlation coefficient. Level (0.05) This indicates that the test has a high level of honesty.
Stability of the test: The stability coefficient was calculated using the equation (Kyoder - Richardson - 20) where it was found that the stability of the test is equal to (0.88) so the stability coefficient is good.

After the statistical analysis procedures were carried out and the validity of all the paragraphs was verified, the mental mathematics test is ready to be applied in a number of paragraphs (30).

Chapter 4 (View and interpret results)
In order to validate the zero hypothesis that "there is no statistically significant difference at the level of significance (0.05) between the average scores of students (who will be taught according to the strategy of Vasili enrichment and who will be taught according to the usual method) in the mental mathematics test."
The data were analyzed using t-test for two independent samples to determine the difference between the mean scores of the two groups of research as in Table (3)

Table (3)

T-test results to indicate the difference between the two groups of research in the total score of mental math test

Statistical Significance at level 0.05	T value		The degree of freedom	Standard deviation	Arithmetic Mean	Number of sample members	the group
	Table	Calculated					
D .Statistically	2	15,941	55	2,560	22,14	29	Experimental
				2,351	11.75	28	Control

This indicates that there is a statistically significant difference between the mean of the experimental and control groups in the mental mathematics test and in favor of the experimental group, thus rejecting the null hypothesis and accepting the alternative hypothesis: "There is a statistically significant difference at the mean level (0.05) Who studied according to the Wesleyi strategy of enrichment and who studied according to the usual method (in the mental math test).

The efficiency ratio was calculated to measure the effectiveness of the

Vasiliy enrichment strategy in the mental mathematics of the fifth graders in the intermediate and post-experimental groups of the experimental group. The efficiency ratio was 0.63, Where the effectiveness of the program or strategy is effective (60% and above) (Eid, 2006: 250), indicating the effectiveness of the strategy of emotional enrichment in mental mathematics as shown in Table (4).

Table (4)

Effectiveness (for MacGujian) in the mental mathematics of the experimental group in the tribal and post-test

Mac Gujian effectiveness Ratio	The final grade	Arithmetic Mean	Application	the group
0,63	30	8,79	Tribal	Experimental
		22,14	Post	

(The ratio of MacGujian 0, 0.60)

Interpretation of results

The results of Tables (3,4) above show a statistically significant difference between the mean scores of the two groups (experimental and control) and for the benefit of the experimental group. The reasons for this are that the use of the Vasiliy enrichment strategy in teaching:

1 - Helped to provide a stimulating educational environment and this can contribute to improving the ability of students to absorb the facts and thus lead to a positive role in the collection of information, organization and evaluation and increase their ability to use this information in different educational situations.

2 - supported the students to organize ideas logically coherent by their insistence on reaching the correct answers to the activities in each new activity is provided, which has had a positive impact in increasing their learning of mental mathematics.

3 - contributed to the self-learning of students, each student invests their intellectual skills in the possibility of searching for information and analysis and result in the result of the extent of absorption.

4. Its procedures are in line with the focus of modern education in making students the center of the educational process, in addition to adopting scientific discussions and making students more active and positive.

CONCLUSIONS: By presenting the results of the study, it is clear to us the effectiveness of the strategy of Wesley enrichment in the teaching of mathematics. It gives students the opportunity to express their opinions scientifically and make them active elements in the learning process and gain a distinctive way of thinking than the normal way. Based on the results of the study, we conclude:

1 - effectiveness of the strategy of enrichment Wesili mental mathematics among pupils in the fifth grade primary.

Recommendations

In the light of our search results, we recommend the following:

1. The Ministry of Education must instruct educational supervisors to urge mathematics teachers to emphasize the use of the strategy of Wassili enrichment in the teaching of mathematics for the fifth grade of its effectiveness in the mental mathematics of learners.

2 - To direct the attention of officials in the directorates of the Ministry of Education to organize training courses focused on training teachers and teachers how to use the strategy of enrichment and facilitation in their teaching.

3 - the need to include mathematics books with examples and issues related to the components of mental mathematics as they have a key role in improving the thinking methods of learners.

4 - enrich the books of mathematics determined by the enrichment activities, which are in accordance with the strategy of rich enrichment and the various educational stages.

Fifth: Proposals

In continuation of the current study, it was suggested that:

1. Conduct a study similar to the current study shows the effectiveness of the strategy of Vasili enrichment in mental mathematics in other stages of education.

2 - Conducting a study on the strategy of visual enrichment and its impact in other dependent variables such as visual thinking or critical thinking or tendencies towards mathematics.

3 - Preparation of a proposed program to train students in the Department of Mathematics in the Faculty of Education on the use of the strategy of enrichment Wesili and discuss the impact in their attitudes towards the teaching profession and the development of their performance.

4 - Conducting a study on the effectiveness of the strategy of enrichment and facilitation in the development of beliefs towards mathematics or taste of aesthetic mathematics and multiple stages of study.

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