opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N° 20
Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45

Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

Opcion, Año 35, Especial Nº 20 (2019):*2899-2921*
ISSN 1012-1587/ISSNe: 2477-9385

The Effect Of The Strategy Of Gradual Activities Difficulty In Acquiring Concepts Among Fourth Grade Students In Mathematics

Prof. Dr .Galib Khazaal Mohammed
Ban Amer Abdulameer Al- Mulla

Abstract

The current research aimed to identify the effect of using strategy of gradual activities Difficulty in acquiring concepts among fourth grade students in mathematics, and to achieve the target of research and developed the null hypothesis that assumes the lack of statistically significant differences between the experimental group that will study the using strategy of gradual activities Difficulty and the control group , which will be examined in the usual way in teaching , research sample consisted of (60) student researcher Achtarthn Qsidia of the study population into two groups by distributors (30) students in the experimental group and 30 students in the control group , the researcher has Kavit between these two groups in the number of variables (Age measured in months , and collection former mathematics , and IQ test , and prior knowledge in mathematics) , have been prepared researcher tested for the acquisition of mathematical concepts consisting of (36) paragraph of type selection of multi were verified sincerity and persistence and effectiveness of alternatives wrong , and after application the sample and analyze the results statistically significant results revealed the superiority of the experimental group that learned of using strategy of gradual activities Difficulty in the acquisition of mathematical concepts in the light of the findings and conclusions of the researcher presented a number of recommendations and proposals, including the use of a specimen (of using strategy of gradual activities Difficulty) in teaching being in line with modern educational theories that emphasize the participation of female actors in the process of learning and education, and because of its impact on Ntaújhen by on the other hand to build a spirit of cooperation and competition among them , a similar study of the current study with other variables not addressed by the present study (such trends , the ability to solve problems , develop curiosity)

El Efecto De La Estrategia De Actividades Graduales Dificultad Para Adquirir Conceptos Entre Estudiantes De Cuarto Grado En Matemáticas

Resumen
La investigación actual tuvo como objetivo identificar el efecto del uso de la estrategia de actividades graduales Dificultad para adquirir conceptos entre estudiantes de cuarto grado en matemáticas, y para lograr el objetivo de la investigación y desarrolló la hipótesis nula que supone la falta de diferencias estadísticamente significativas entre el grupo experimental que estudiará la estrategia de uso de las actividades graduales Dificultad y el grupo de control, que se examinará de la manera habitual en la enseñanza, la muestra de investigación consistió en (60) estudiante investigador Achtarthn Qsidia de la población de estudio en dos grupos por distribuidores (30) estudiantes en En el grupo experimental y 30 estudiantes en el grupo de control, el investigador tiene Kavit entre estos dos grupos en el número de variables (edad medida en meses, y la colección de matemáticas anteriores, y la prueba de coeficiente intelectual, y el conocimiento previo en matemáticas), se han preparado investigador probado para la adquisición de conceptos matemáticos que consisten en (36) párrafo de tipo sele Se verificaron múltiples opciones de sinceridad y persistencia y efectividad de alternativas incorrectas, y luego de la aplicación la muestra y el análisis de resultados estadísticamente significativos revelaron la superioridad del grupo experimental que aprendió a utilizar estrategias de actividades graduales Dificultad en la adquisición de conceptos matemáticos en el A la luz de los hallazgos y conclusiones del investigador, se presentaron una serie de recomendaciones y propuestas, incluido el uso de un espécimen (de utilizar la estrategia de las actividades graduales Dificultad) en la enseñanza, en línea con las teorías educativas modernas que enfatizan la participación de las mujeres en el proceso de aprendizaje y educación, y debido a su impacto en Ntaújhen al construir un espíritu de cooperación y competencia entre ellos, un estudio similar del estudio actual con otras variables no abordadas por el presente estudio (tales tendencias, el capacidad de resolver problemas, desarrollar curiosidad)

Chapter One: Definition of Research
First: The Problem of the Research
The process of teaching scientific concepts is cumulative, not just impor-

tant for adding new information to previous information and new knowledge. Concepts play a key role in acquiring and employing knowledge. In order to make meaningful learning, the learner must link the new concepts with his previous knowledge of the concept. Given the role of concepts in highlighting the educational material and its importance in building and refining the knowledge structure of the learner, and assist in increasing the achievement and perceptions, the learner can address the concepts in different stages of growth, provided that each concept is defined and represents consistent with this stage. (Hamdan, 2010: 89)

Modern educational trends also emphasized the importance of concepts and the need for pupils to learn and acquire them, but many teachers do not realize this educational importance. (Happiness and Beauty, 1988: 91) In addition, the researchers were informed about the results of many studies and researches in the field of teaching methods of mathematics, which indicated that students have difficulty in learning and acquiring mathematical concepts, which leads to instability and entrenchment in their memory, including the study (Obeidi, 2009) and (Saadi, 2011) .

The studies conducted, including (Sami, 2003) and (Bayati, 2010) and (Ali, 2013) and (Karkhi, 2016) to the existence of weakness in the acquisition of mathematical concepts among primary school students.

Khatib also explained that the learner's acquisition of mathematical concepts affects the learning process because the learner's ownership of the cognitive structure of the subject entails the generation of a new stage and reach new relationships between its elements and it can be used to solve the problems faced. (Khatib, 1992: 1)

Therefore, the researchers found that the use of a modern strategy in the teaching of mathematics as a strategy of gradual activities of difficulty of great importance in the field of teaching and learning, the researcher identified the problem of research by answering the following question:
Does the strategy of gradual activities difficult difficulty in the acquisition of concepts for fourth grade students in mathematics?
Second: the importance of research The significance of the research

Educators have begun to see that the bulk of the responsibility for learning lies with the learner and the teacher should make a special effort in providing students with the required strategies that enable them to acquire the information themselves and then processed and organized in a way that they can understand and retain. (Rose. & Coll: 1992, p.60)

The researchers agree with him and others in terms of choosing the teaching methods that suit learners is a science and art is not good for

many and highlight its importance through the interaction of the teacher and the learner and the study material, it helps the teacher to reach the desired goals taking into account the time and effort during the presentation of the lesson Achieves good communication between him and his learners. (Zayer et al., 2014: 43)

Through the study of a number of experimental studies I have noticed the superiority of the gradual activities strategy difficulty on the normal way such as study (Obeidi, 2017) and (Jubouri, 2018) and (Tamimi, 2018), which prompted the researchers to experiment in teaching mathematical concepts in the primary stage to be Their research is a new addition to previous research

Educational activities have an important role to enable students to carry out their exploratory and exploratory activities to acquire new educational capabilities. (Atallah, 2001: 51)

Encouraging students to participate in educational activities will help them to discuss and exchange views and clarifications on the content, these activities work to retain the best information and help them to develop capacity. (Myers & Jones, 1993: 29

One of these strategies is the strategy of gradual difficult activities, which are characterized by equal effectiveness and activity and equal in terms of listening and participation and fair in terms of expectations of work and time required to accomplish, and in the form of different activities fit with the level of knowledge of learners. (Shammari, 2011: 125)

The importance of research can be determined by the following points:

1. The importance of using modern contemporary strategies in teaching mathematics because of its great importance and contain abstract concepts and difficult, including the strategy of gradual activities difficult to reduce the use of traditional methods.
2. The importance of mathematical concepts because they represent the cornerstone of understanding the educational material and that the acquisition of one of the objectives of teaching.
3. The importance of the primary stage because it is the basis for the later stages of education requires attention to the students of this stage in order to be able to continue the later stages.

---

(1) Article 3 of the Iraqi State and Public Sector Discipline Law in force No. 14 of 1991, as amended, is considered.

4. This research (to the knowledge of the researchers) is the first attempt in Iraq where the teaching of mathematics strategy activities gradual difficulty and the first attempt to employ them in the acquisition of concepts and retention.

Third: Aims of the Research

The research aims to identify the impact of the use of the strategy of gradual activities difficulty in the acquisition of mathematical concepts among fourth grade students in mathematics.

Fourth: The Research Hypotheses

In order to verify the research objectives, the researcher developed the following hypothesis:

There was no statistically significant difference at the level of significance (05 and 0) between the average grades of students who studied according to the strategy of gradual difficulty activities and the average grades of students who studied according to the usual method of testing the acquisition of concepts.

Fifth: Limitation of the research Limitation of the Research

Current search is limited to:

1. Spatial boundaries: Government primary schools of the General Directorate of Education of Baghdad - Karkh / 2 for the academic year (2018 - 2019).

2.Human Frontiers: Fourth grade students in Baghdad province Karkh / 2 for the academic year (2018 - 2019).

3. Objective limits: the chapters (division, regular fractions, decimals) of the textbook of mathematics to be taught to fourth grade primary students for the year (2018-2019). First Edition.

4. Time Limits: The second semester of the academic year (2018 - 2019).

Sixth: The definition of terms Bounding of the terms

The strategy of gradual activities Difficulty: "A set of activities based on the principle that learners are different in abilities and skills. Some of them "(Saidi, Huda, 2016: 519)

Procedural definition: The activities carried out by students in different abilities and skills during the educational process and is measured by the

---

(2) d. Majid Khidr, d. Saman Abdullah, Graft Crime, Tikrit University Law Journal, Volume 4, Issue 29, 2016, p. 46.

This explains the disparity in the provisions and controls of the crime of graft in the various laws and their provisions vary according to those legislation.

final degree obtained by the student in the test of the acquisition of concepts.

Mathematical Concept: "A rule for making a decision or judgment, when it applies to the characteristics or characteristics of something, we can determine whether or not the designation of that object can be given." (Abu Zeina, 2007: 118)

Acquisition of concepts: "A mental process towards a group of stimuli is presented to the learner in a particular educational situation so that he has a mental image towards these stimuli, which can be summoned and generalized in new educational situations" (Alwandi, 26: 2007)

Procedural definition: The extent of the student's knowledge of the mathematical concept and what it represents and what does not represent a measure to the degree obtained in the test to acquire the concepts specified

Chapter II: Theoretical background and previous studies

Axis 1: Strategy of Gradual Activities Difficulty Tiered Instructin Strategy:

By educational activities, we mean all activities involving the learner that require skills and mental or systematic or irregular practical skills inside and outside the educational institution that bring back more experiences that support his learning for a variety of subjects. There are two types of activities, including school and non-school. My classroom takes place inside the classroom to directly serve specific subjects, and a non-classroom activity takes place outside the classroom to indirectly serve scheduled subjects or to give the learner more experience. (Desouki, 2009: 24)

The educational activities are the heartbeat of the curriculum and in order to play its role effectively and success must be linked to the objectives of the curriculum, and learners must accept the idea of different tasks and activities offered by the teacher for some of them and this is not a preference for some of them, but is to help each of them to achieve the shortest success Dealing with peers are different in some of their attitudes and inclinations, so requires the teacher to follow modern strategies that enable him to diversify these activities and tasks to achieve the desired educational goals and these strategies (strategy of gradual activities difficult). (Attieh, 2008: 101) The strategy of gradual activities difficult difficulty of strategies for active learning and teaching differentiated at the same time it emphasizes the positive learner in the educational situation, through the practice of many individual and group activities that have active learning elements are listening, speaking, reading and writing This includes all educational practices and teaching procedures aimed at activating and maximizing the role of the learner through work, research and experimentation, relying on

himself in obtaining information and acquiring skills. This strategy can be used when there are learners This difference does not qualify learners to deal with knowledge or skill performance from one starting point or at the same time specified for everyone. This difference calls for designing gradual and different levels of activities and each learner can start. The teacher can design three levels of activities that correspond to the real level of each learner and the opportunity for learners to choose and practice the activities graded under Ashra. A teacher should handle situations flexibly if the learner is housed in an activity above or below the real level. (Lotfy, 2017: 88)

The idea of this strategy is also based on the principle that learners are different in abilities and skills and therefore the teacher develops different activities that take into account individual differences between learners as they eventually discover the same main ideas and work on different levels of thinking as all groups finally meet to discuss and benefit from each other . (Ambosaidi and Huda, 2016: 516)

Graduated difficulty activities are very important to ensure that learners with varying educational needs work on the same basic ideas and use the same basic skills but with varying levels of difficulty, abstraction and open ends (Zahrani, 11: 2016).

Graduated activities use difficulty to focus all learners on the same knowledge but at different levels of knowledge by keeping it focused on the information and ideas of the activity while providing access ports with varying degrees of difficulty with the keen teacher that the learner learners all the same knowledge that each learner receives the appropriate challenge He and the teacher who cares about the gradual activities, he must continue between the performance of the task and difficulty. (Sharif, 81: 2011)

Steps of the strategy of activities graded difficult

When building activities, the teacher takes into account the difficulty according to the following levels:

• Graduation at the challenge level: the teacher uses the Bloom Pyramid to prepare activities, as it prepares activities for learners with the highest capacities according to the higher levels of Bloom's classification (analysis, synthesis and evaluation), while it prepares activities for learners with middle and lower capacities based on the levels (knowledge and understanding) And app).

• Hierarchy according to the level of difficulty (complexity): This level requires a difference in the progress of the work required by the groups and

not the difference limited to the amount required to be done.
• Graduation according to the level of sources: As the learners differ in how much they know about a particular subject that the teacher wants to study, it is asking them to graduate tasks based on this previous knowledge. (Ambo Saidi and Huda, 2016: 517)
• Graduation by level of output: learners use the same materials, but what they work with these materials is different.
• Grading by level of operations: learners work on the same outputs, but they use different processes to obtain them.
• Graduation by Output Level: The teacher divides the learners into groups according to their intelligence according to Gardner method. (Shammari, 2011: 128)
Assumptions underlying the strategy of progressive difficulty
This strategy is based on several assumptions, including the following:
• Learners differ from each other in previous knowledge, characteristics and inclinations.
• Requires the teacher to accommodate each learner at the starting point during the teaching.
• The strategy of progressive activities provides a suitable learning environment based on the diversification of activities and procedures commensurate with different learners.
• The teacher should prepare educational activities to suit all levels of learners. (Kojak et al., 2008: 133)
The role of the teacher in the strategy of gradual difficulty activities
The role of the teacher in this strategy is summarized as follows:
• Teacher's role as a guide and guide for education.
• Preparation and good planning of educational activities at each level.
• Learner in the activity that suits his level.
• Dynamic follow-up of learners as they carry out these activities.
• Identify learners' preparations through a variety of means.
The role of the learner in the strategy of gradual difficulty activities
The role of the learner in this strategy is summarized as follows:
• The learner is at the center of the educational process.
• Positive participation in the planning and implementation of lessons.
• Search for information himself from multiple sources.
• The learner should accept the idea of different tasks and activities offered by the teacher for some of them is not a preference but taking into account the differences and achieve individual learning.
• Collective cooperation among them in achieving the duties required of

them.

• Learners participate in assessing themselves and enhancing their self-confidence and ability to fulfill their duties. (Tamimi, 2018: 49)

Axis II: Mathematical Concept: Mathematical concepts are formed as a result of dealing with the individual external environment and the interaction with the assets in that environment, the formation of the mathematical concept "a natural process occurs initially using the senses where the individual distinguishes between objects and perceive the properties between objects sensory and then move increased Experiences to the stage of understanding and mental perception of these concepts and the goal of the formation of the mathematical concept is to form a new concept that the learner has not learned (al-Mashhadani, 15: 2011)

Factors that shape and develop the concept

• Is the experience of the learner, which requires the teacher to provide learners with wide and varied experiences within the time and mental age and the curriculum allocated to them.

• Linking new experiences and concepts to the previous experiences of the learner. (Al Hammadi, 3: 2000)

Brunner has identified three basic stages of conceptual development according to the child's cognitive development:

• The sensory or practical stage: where the act or action is the way of the child to understand the environment through direct interaction with things and situations in the environment and at this stage a child has many concepts by linking them to actions or actions by himself and here highlights the importance of practical training and performance in Formation and acquisition of concepts.

• The conceptual stage: in which the child his concepts through mental imagination and can represent the concepts by drawing or through semi-abstract images not associated with a special work.

• Symbolic stage: the stage in which the child reaches the stage of abstraction and the use of symbols as the symbol replaces actions and focus on the experiences gained and written in the form of mathematical or symbolic equations. (Bawazir and Eucharist, 2011: 27)

The definition of the means and steps to acquire the concept is the task of education, as the acquisition of the concept reduces the need for more learning, because the concept is one of the levels of knowledge, but it is the basis must be measured acquisition and make sure to learn before starting to learn the rest of the mathematical pyramid, through the question and put Specialists to measure the acquisition of the concept infer the validity of

its composition. (Abdul Saheb and Ashwaq, 2012: 56)

Brunner identified key elements of concept acquisition:

1. Definition of the concept.
2. Distinguish the concept.
3. Apply the concept.

: previous studies

First: Studies dealing with the independent variable

العا Al-Obeidi study (2017): This study was conducted in Iraq / Baghdad and aimed to know (the impact of employing the strategy of gradual activities according to the dimensions of sustainable development in the achievement of fourth grade students in biology and decision-making) The sample of the study consisted of (67) The duration of the experiment was ten weeks, while the study tools were an achievement test consisting of (46) paragraphs and a decision-making scale of (25) paragraphs, and a measure of multiple intelligences consisting of (44) paragraphs. , And the formula for distinguishing paragraphs established The results of the study showed a statistically significant difference at the level of significance (0.05) in favor of the experimental group.

الجب Jubouri study (2018): This study was conducted in Iraq / Babylon and aimed to know (the impact of the strategy of gradual activities in the achievement of second grade students in the geography) The sample of the study consisted of (64) students and the duration of the experiment was nine weeks, while the study tools were The researcher used the T test of two independent unequal groups in number and square K (Ka2), the difficulty of the paragraphs equation, the equation of distinguishing the objective paragraphs and the equation of the effectiveness of the wrong alternatives, the Pearson equation, the Spearman equation and the Coder Richardson equation, the presence of a significant difference Count Yeh at the level of (0.05) for the experimental group.

 Tamimi study (2018): This study was conducted in Iraq / Diyala aimed at identifying (the impact of the strategy of gradual activities in the achievement and the development of synthesis thinking among the fourth grade literary students in history). The study tools were an achievement test consisting of (50) paragraphs, and a measure of synthetic thinking consisting of (36) items. Erroneous, the Pearson equation The results showed that there was a statistically significant difference at the level (0.05) in favor of the experimental group.

Second: Studies dealing with the dependent variable

 Bayati study (2010): This study was conducted in Iraq / Baghdad and aimed to (know the effect of using the Closmayr model in the acquisition and retention of mathematical concepts) The sample of the study consisted of (63) pupils and the duration of the experiment was the second semester, the study tools was a test Consisting of (40) multiple choice items, the researcher used the test T test for two independent samples, the equation of the paragraph recognition, the difficulty of the equation, the effectiveness of the wrong substitutes (the camouflages) and the Koder Richardson-20 (20-KR) equation. Statistical at the level (0.05) in favor of the total Experimental.

 Ta'i study (2014): This study was conducted in Iraq / Babylon and aimed to (know the impact of the use of the model Gerlak and Eli in the acquisition of mathematical concepts and retention of second grade students average) The study sample consisted of (60) students and the duration of the experiment the second semester, The researcher used the T-test for two independent samples, the equation of the paragraph recognition, the difficulty of the equation, the effectiveness of the wrong substitutes, the Cooper equation, and the Coder Richardson-20 equation (20-KR). The results of the study were the presence of VR It was statistically significant at the level (0.05) in favor of the experimental group.

ج Jassim study (2016): This study was conducted in Iraq / Baghdad and aimed to (know the effect of educational models on the acquisition of mathematical concepts and retention of fourth grade students) The study sample consisted of (72) students and the duration of the experiment is the second semester, the study tools The concept acquisition test consisted of (99) multiple choice items, and the researcher used the T-test for two independent samples, the equation of the paragraph recognition, the difficulty of the paragraph, the equation of the effectiveness of the false substitutes, the chi-square test and the 20-KR equation.), And the results of the study was the presence of a difference Of statistics at the level of (0.05) in favor of the group trial is

Chapter Three: Research Methodology and Procedures

Method Research Methodology

The first steps of any researcher is to choose the research method, a method that follows the researcher's approach to achieve the desired goal, it is a set of foundations, rules and methodological steps used by the researcher in the organization of work done to investigate scientific facts. (Abdulrahman and Zangana, 15: 8002)

To achieve the goal of the research, the researcher followed the semi-ex-

perimental approach to suit the nature of the research and its objectives, which is based on careful observation of the educational phenomenon under study, represented by a set of coordinated objective objective actions that the researcher thinks and implements to confirm an idea or hypothesis. The selection of experimental design and determines the research community and sample and the equivalence of two groups, and control the variables extraneous and includes a set of procedures and tools used to collect the required information, analysis and interpretation to obtain the appropriate answers to solve the research problem. (Xia, 157: 20011)

First: Experimental Design

The more the choice of experimental design is based on the research objectives, variables and the circumstances under which it will be carried out, the results obtained through data analysis are more accurate, more honest and objective.

(Rauf, 2001: 179)

The researcher chose the experimental design with partial control and post-test. This depends on the experimental group studying the independent variable (the strategy of gradual activities difficult) and the other is the control group, which is taught in the normal way, and when the experiment is completed, the concept acquisition test will be applied and after two weeks, the same test will be repeated. On the two research groups to measure the retention of concepts, as in Table 1

Table (1) Experimental design of the research sample

Group	Equivalence of the two groups	Independent variable	Dependent variable	Post-test
Experimental	**-The chronological age of months -previous knowledge - Intelligence - Previous collection**	**strategy of gradual activities Difficulty**	**Acquisition and Retention concepts of mathematical**	**-test Acquisition concepts of mathematical test Retention - concepts of mathematical**
Control		**Usual method**		

Second: Research Population

Determining the original community is the first step to consider when

selecting a sample.

(Zobaie et al., 1981: 176)

The current research complex consists of the fourth grade primary school students in the government primary day schools affiliated to the Directorate General of Education in the province of Baghdad / Karkh second education for the academic year (2018-2019).

Third: Sample of the research

Is a part of the original research community and a representative of the correct representation chosen by the researcher, and includes a number of individuals from the original community to be selected according to the rules and practical methods. (Al-Da'ilaj, 114: 2010)

The researcher intentionally selected the school (Diyar Elementary) of the Directorate of Education Baghdad / Karkh second to be a sample of research and for the following reasons:

1- There are two mixed divisions (girls and boys) in the school.

2 - near the school to the residence of the researcher.

3 - Cooperation of the school administration with the researcher.

4 - students of this school from an environment converging economically and socially.

5 - the similarity of school classes in terms of lighting and ventilation to control the extraneous factors affecting the research.

The research sample was selected according to the following:

• Division B was randomly selected to represent the experimental group, while Division A represented the control group.

• Failure students were excluded so that their previous experience does not affect the results of the research and the number of (3) pupils from the two groups, thus the members of the research sample (60) pupils (including 30) pupils of the experimental group and (30) pupils (Control group

Fourth: Equivalent of study

One of the important things a researcher should do when planning a research is to control all the factors that affect the dependent variable. (Mahgoub, 1985: 244)

The research variables were confirmed by parity between the experimental group and the control group in some variables (chronological age calculated in months, previous knowledge test, intelligence test) as shown below Table (2) equivalence variables for the two research groups

Group	erimental (30) student		trol (30) Student		t value		Freedom degree	Statistical significance at level (0.05)
Equivalence variables	Average arithmetic	Standard deviation	Average arithmetic	Standard deviation	Calculated	Table		
Chronological age	63		67		6		8	No significance
Intelligence	17.83	3.80	18.07	3.60	0.896	2	8	No significance
Previous information	8.43	1.41	8.27	1.74	0.434	2	8	No significance
Test mathematical	12.80	2.80	11. 87	3.31	1.180	2	8	No significance

Fifth: Adjust the extraneous variables Control Interring Variables

It is one of the important procedures in scientific research as it contributes to enable the researcher to control the truthfulness of the results and provide internal honesty for experimental design.

The intermediate variables are a set of variables that mediate independent variables and dependent variables. They are conceptual or conceptual rather than procedural. They affect dependent variables and independent variables are involved in effecting change. (Afon and Wasan, 2014: 181)

Sixth: Research requirements

1) Determination of scientific material: The process of identifying, selecting and organizing study topics is one of the basic tasks in determining educational goals. (Obeid et al., 2001: 40)

The researcher identified the scientific material from a book of mathematics that will be studied for students of the two research groups during the duration of the experiment, including the chapters VI (division), VII (regular fractions), and VIII (decimal fractions). From the book of mathematics to be taught for the fourth grade of the primary school year (2018-2019) m.

2) Formulation of behavioral goals: Behavioral goal is the final performance of the observable and measurable, which is expected from the learner to do after going through the educational situation.The goals are characterized by high degree of abstraction and need a short time to achieve by the learners and it is the responsibility of setting these goals and achieve them on the teacher. (Zaghloul, 2016: 50)

The researcher has formulated a number of behavioral goals based on the content of the scientific material has reached (125) behavioral goals

3) Preparation of teaching plans: The researcher has prepared (30) daily plan for each group (experimental taught according to the strategy of gradual difficulty activities) and (control officer taught according to the usual method)

Seventh: Search Tool

One of the requirements of the current research is the preparation of one tool (the test of acquiring mathematical concepts) measures the extent to which students acquire and retain mathematical concepts in order to identify the extent to which the research objectives and hypotheses have been achieved.

1) Objective of the test: The aim of the test is to measure the extent to which the fourth grade students acquire and retain the mathematical concepts contained in the three classes to determine the effect of the independent variable in the acquisition and retention events.

2) Determine the learning material: The educational material was previously defined in the vocabulary of the chapters (VI, VII, VIII).

3) Identification of mathematical concepts: The researcher analyzed the three chapters and identified the concepts (12) a key concept.

4) Formulating behavioral objectives: This section has been addressed in advance

5) Preparation of the test paragraphs: Preparation of the test of the acquisition of mathematical concepts where the number of the main concepts (12) concept The total of the paragraphs of the test (36) paragraph type of multiple choice and that these questions are specific answers and do not accept interpretation, and that the debugger is not affected by the language of the student When answering or his plan quality.

6) Psychometric properties

The researcher was keen to be honest tool and achieve the objectives of the research, so the researcher used some types of honesty to suit the subject of the research:

* Virtual honesty Validity Face

The instrument is apparently honest if its appearance indicates that its paragraphs are related to the measured behavior. (Jabouri, 2013: 168)

* Content Validity

It means the degree to which the test measures what is designed for measurement, and is one of the most important types of honesty in the achievement tests as it systematically examines the set of paragraphs contained in the test.

(Saadi and Haidar, 2014: 91)

Statistical analysis of the test items: To perform the statistical analysis of the items, the following was followed:

1. Paragraph difficulty coefficient: The difficulty of the paragraphs was found from the equation, and the difficulty of the paragraphs (0.22 -0.60).

2 - Paragraph discrimination factor: The coefficients of discrimination were calculated for each of the test paragraphs, and found that the value (0.2-0.84).

3 - The effectiveness of the wrong alternatives: The effectiveness of the wrong alternatives was calculated, and found that the wrong alternatives have attracted more students from the lower group than the upper group, and thus returned all the wrong alternatives effective.

4- Stability of the test: Stability is also called the accuracy of measurement to distinguish it from the validity of the measurement and the stability of the test means that the test is reliable and reliable (Melhem, 256: 2000), and the researcher used the equation (Koder-Richardson 20) to calculate the stability of the test where the coefficient of stability. This indicates that the test has a high degree of stability.

Eighth: Application Procedures

1 - Application of the experiment: began to apply the experiment on Wednesday 20/2/2019 and ended on Thursday, 18/4/2019

2 - Procedures for the application of the test: After the completion of teaching the content of the research material according to the time limit of the experiment and for the two research groups, applied the test of acquiring mathematical concepts on Thursday 18/4/2019).

3 - Test Correction: The test papers and grading of the two groups (experimental and control) have been corrected and are ready to handle statistically up to the results related to the objectives of the current research.

Application of retention test:

Two weeks after the application of the acquisition test the researcher applied the same test on the research sample for the purpose of measuring the retention of mathematical concepts among students (research sample) on Tuesday 30/4/2019 m

Ninth: Statistical means

In this research, the statistical program SPSS was used to analyze the data with the appropriate statistical means

Chapter Four: Presentation and Interpretation of Results

After the end of the research experiment according to the steps and procedures referred to in the previous chapter, I analyzed my findings to find

out the effect of the strategy (activities of gradual difficulty) in the acquisition and retention of concepts for fourth grade students and to identify the significance of statistical differences between them and to verify the hypotheses of research and detect whether The research results supported or rejected these hypotheses.

Presentation of Results

1. For the purpose of verifying the first null hypothesis which states that: "There is no statistically significant difference at the significance level (0.05) between the average scores of students who studied according to the strategy of gradual difficulty activities and the average scores of students who studied according to the usual method of testing the acquisition of concepts."

After correcting the students' answer sheets and calculating the total score for each pupil, the mean and standard deviation of the two groups were calculated.

Table (3) T-test results to determine the significance of the difference between the mean of the two research groups in the test of acquiring mathematical concepts

Group	Sample	Arithmetic mean	Standard deviation	Freedom degree	T- value		Statistical significance at level (0.05)
					Calculated	Table	
Experiment	30	24.9	4.27	58	4.313	2	Statistical significance
Control	30	19.6	5.20				

The table above shows:

The difference between the mean of the experimental group and the control group in the test of acquiring mathematical concepts is statistically favorable to the experimental group.

To find out the effect of the strategy of gradual activities difficulty in the acquisition of mathematical concepts, the researcher used the test box ETA (⟦η⟧ ^ 2) to calculate the magnitude of the impact of the independent variable (strategy of gradual activities difficult) on the dependent variable (acquisition of concepts), was found to be (1.30 It turned out to be very large as shown in Table (4).

Table (4)

Values of d, η ^ 2 and the amount of influence of the two research groups

(experimental and control) in the mathematical concepts acquisition test
Second: Interpretation of results
The results showed that the pupils of the experimental group who studied according to the strategy of gradual difficulty activities were superior to the pupils of the control group who studied according to the usual method of testing the acquisition of mathematical concepts and for the benefit of the experimental group.
The researcher believes that the superiority of the experimental group over the control group is due to the most important reasons:
التدريس The teaching using the strategy of gradual difficulty activities according to sequential steps and sequential led to the mental organization of students and thus led to increased acquisition of mathematical concepts and retention.
 Graduated Activities Strategy Difficulty took into account the individual differences between the experimental group students in terms of their abilities and skills through the different activities and tasks provided by the teacher to them, which increased their participation and interaction within the classroom.
 The strategy of gradual activities difficult to use more than one method during the lesson encouraged interaction between the students of the experimental group during the lesson, which led to the integration of students with the various activities they carry out where they increased their attention and focus.
استراتيجية The strategy of gradual difficulty activities reduces the introversion of a number of students and reduces the fear of failure in a number of others through the agreement of students and a group on a unified response and mastery of this answer.
 Teaching according to the steps of the strategy of gradual activities Difficulty cooperative groups Easy process of acquiring the experimental group of students of the subject through the various activities and tasks provided to them by the teacher
 Teaching in accordance with the steps of the strategy of gradual difficulty activities was an educational experience acquired by students of the experimental group and added to their knowledge and made them dependent on themselves in reaching the desired goals.
بأسلوب The method of teaching according to the strategy of gradual difficulty activities is consistent with the principles of modern teaching such as making the learner the center of the process of education and respect for his personality, inclinations, need and accommodation at the appropriate

level, which prompted him to participate effectively in the lesson.
رات يجيةي The strategy of gradual activities difficult difficulty in teaching, which led to the interest of students in scientific material and helped them to raise their motivation towards mathematics and high achievement
استارتيجيةي The gradual activities strategy contributed to the difficulty in acquiring and retaining concepts for the fourth grade students in mathematics. This is evident through the difference between the two groups in the results of the concept acquisition and retention test.
 Teaching according to the strategy of gradual difficulty activities increased the desire of students of the experimental group in the research and investigation and the order of ideas and concepts acquired and aspiration for different perspectives, which led to their acquisition of mathematical concepts.
استارتيجيةي The strategy of gradual difficulty activities corresponds to the mental maturity of the students, enabling them to understand the subject.
Third: Conclusions
In the light of the findings of the researcher concludes the following:
 The effectiveness of the strategy of gradual activities difficulty in raising the level of acquisition of fourth grade students of mathematical concepts compared to the usual method.
 Education according to the strategy of gradual difficulty activities has the effect of providing a positive and effective role for students by observing the researcher for their participation in activities and tasks.
مناقشة The students' discussion on scientific topics related to mathematics made them more enthusiastic, active and involved in the lesson.
استارتيجيةي The use of the strategy of progressive activities contributes to raising the level of education and achievement of students and increase their understanding of the material and then install it in their minds for a longer period.
 Adequacy of the strategy of gradual activities difficult to the nature of mathematical concepts because they are abstract concepts that the strategy of gradual activities difficult contributed to the use of more classroom activities that led to the achievement of educational goals.
Fourth: Recommendations
In the light of the findings of the current research, the researcher recommends the following:
 Teaching mathematical concepts in schools using the strategy of gradual difficulty activities.

 Emphasis on the strategy of gradual activities difficulty in teaching mathematics because of its importance in increasing the acquisition of mathematical concepts and retention.
 Interest in building tests to acquire concepts in mathematics to be accessible to teachers and teachers to evaluate students' learning of mathematical concepts being taught.
 Conduct training courses for teachers to provide them with the latest methods, methods and strategies of modern teaching, including the strategy of gradual activities difficult.
ةيمه The importance of using modern educational strategies in teaching and teaching mathematical concepts in order to acquire them, especially the strategy of gradual difficulty activities that have proved effective through the current research.
 Create classrooms and classrooms, and the availability of furniture, equipment and teaching aids to help teachers to teach according to modern strategies.
 Enrich the mathematics textbooks for the fourth grade of primary activities that motivate students to acquire mathematical concepts.

Fifth: Suggestions

To complete the current research, the researcher proposes the following:
 Conduct a similar study to identify the impact of the strategy of gradual difficulty activities in mathematics and at different stages of study.
 Conduct a similar study to identify the impact of the strategy of gradual difficulty activities in other subjects and different stages of study.
 Conduct a similar study to identify the impact of the strategy of gradual difficulty activities in other variables, such as the ability to solve problems and think about its types and others.
 Conduct a comparative study between the strategy of gradual difficulty activities and other strategies that emerge from active learning strategies in the acquisition and retention of concepts.

Sources :

* Abu Zeina, Farid Kamel, and Abdullah Yousef Ababneh, (2007) "Methods of teaching mathematics for the first grades", Dar Al-Masirah Publishing - Amman.
* Ambo Saidi, Abdullah Bin Khamis, and Huda Bint Ali Al-Hosani (2016): Active Learning Strategies, (180) Strategy with Applied Examples, 1st

Floor, Al-Masira Publishing House, Amman.
* Bawazir, Salwa Abu Bakr and Qurban, Nadia Abdul Aziz, (2011): Development of historical and geographical concepts of kindergarten children, 1st floor, Dar Al-Maisara for Publishing and Distribution, Amman.
* Tamimi, Ali Hadi, (2018): the impact of the strategy of gradual activities in the achievement and the development of synthesis thinking among fourth grade literary students in history, unpublished Master Thesis, Mustansiriya University, College of Basic Education, Diyala.
* Gaber, Abdel Hamid Gaber, (1995): The psychology of learning and theories of education, Dar Al Nahda Library, Cairo.
* Jubouri, Hussein Mohammed Jawad (2013): methodology of scientific research an approach to building research skills, I 1, Dar Safaa for publication and distribution, Amman.
* Al Hammadi, Hassan Ali, (2000): Problems of middle school students in the UAE between the acquisition of concepts and generalizations in history books. Al Bayan Newspaper, United Arab Emirates.
36- Hamdan, Emad Eddin (2010): The Conformity of Mathematical Concepts Included in Mathematics Textbooks in the Higher Basic Stage to the International Standards of NCTM in Palestine "(Master Thesis), Curricula and Methods of Teaching, Al-Azhar University, Gaza
* Al-Khatib, Mohammad Ali Suleiman, (1992): The Effectiveness of Using Merle Tinson and Hilda Taba Models to Teach Mathematical Concepts among Eighth Grade Students, Unpublished Master Thesis Yarmouk University, Irbid
* Desouki, Eid Abu El Maati (2009): Development of scientific activities for the development of thinking (in the light of global projects), the modern university office for publication and distribution, Cairo.
* Al-Da'ilaj, Ibrahim Abdul Aziz, (2010): Methods and Methods of Scientific Research, 1st Floor, Safaa Publishing and Distribution House, Amman.
* Raouf, Ibrahim Abdul Khaliq, (2001): experimental designs in psychological and educational studies, I 1, Dar Ammar for publication and distribution, Amman.
* Zayer, Saad Ali and others (2014): Contemporary Educational Encyclopedia, 1st Floor, University of Baghdad, Iraq.
* Al-Zghoul, Emad Abdul Rahim (2016): Principles of Educational Psychology, 4th edition, University Book House for Publishing and Distribution, Amman.
* Zahrani, Ali bin Mastour (2016): Differentiated Teaching Strategies,

Ajman Journal of Studies and Research, Volume (15) Issue (2), Jeddah.
* Zobaie, Abdul Jalil and others, (1981): tests and technical standards, House of books for publication and distribution, Mosul.
* Saadi, Amjad Kazem Fares, and Haider Karim Jassim al-Musawi (2014): the basics of measurement and evaluation, I 1, Noor Hassan Office for printing and typesetting, Bab al-Muadham, Baghdad.
* HE, Jawdat Ahmad and Jamal Yacoub Youssef, (1988): Teaching the concepts of Arabic language, mathematics, science and social education, 1st floor, Dar Al-Jeel, Beirut.
* Al-Sharif, Shaker Bin Abdul Rahman, (2011): Distinguished Teaching in the Developed Natural Science Curricula, The Professional Development Society of Science and Mathematics Project, Saudi Arabia.
* Al-Shammari, Mashi Bin Mohammed (2011): 101 Strategy in Active Learning, Ministry of Education, General Directorate of Education in Hail Region (Boys) Educational Affairs, Educational Supervision Department of Science.
* Shea, Mohamed (2011): Methods of Thinking and Rules of Research in Humanities and Social Sciences, 2nd edition, Glory of the University Foundation for Studies, Publishing and Distribution, Beirut.
* Abdul Rahman, Anwar Hussein and Zankana, Adnan Hakki, (2008): the conceptual and theoretical foundations in the curricula of humanities and applied, (Book I), i 1, House of wisdom Baghdad.
* Abdul-Saheb, Iqbal Mutashar, and Ashwaq Nasif Jassim (2012): What are the concepts and the basis for correcting the wrong concepts, Dar Al-Safa for Publishing and Distribution, Amman.
* Obaid, Majida Al-Sayed and others, (2001): Fundamentals of Teaching Design, Safa Publishing and Distribution House, Amman.
* Atallah, Michel Kamel, (2001): Methods and methods of teaching science, I 1, Dar Al-Maisara for Publishing and Distribution, Amman.
* Attia, Mohsen Ali (2008): modern strategies in effective teaching, I 1, Dar Safa for publication and distribution, Amman, Jordan.
* Al-Afwan, Nadia Hussein (2012): Modern Trends in Teaching and Thinking Development, 1st Floor, Al-Safa Publishing & Distribution House, Amman
* Kojak, Kawther Hussein, Majida Moustafa El-Sayed, Faramawy Mohamed Faramawy and Alia Hamed Ahmed (2008): Diversification in the classroom.
* Lotfi, Eman Abdel Aal (2017): Active Learning and Differentiated Teaching, 1st Floor, Books World for Publishing and Distribution, Cairo.

* Mahgoub, Wajih, (1985): Methods of Scientific Research and Methods, University of Mosul Press, University of Baghdad.

* Al-Mashhadani, Abbas Naji, (2011): "Learning concepts and skills in teaching mathematics", Dar Al-Yazouri for Publishing and Distribution, Amman.

* Melhem, Sami Mohammed (2000): measurement and evaluation in education and psychology, i 1, Dar Al-Masirah, Amman.

* Al-Wandawi, Sabah Jalil Khalil (2007): The Impact of Merle-Tinson and Closmayr Teaching Models on the Acquisition and Retention of Primary Grammar Concepts in Kurdish Grammar, Unpublished PhD Thesis, University of Baghdad, College of Education - Ibn Rushd

* Meyer, c., & Jones, T.B, 1993, Promoting active learning,
Strategies for the college classroom, San Francesco Tosseg-Bass.

* Rose and coll, (1992: Accelerateyour learning The Action, Hand Dook, Bunking ham Shire Accelerate learning System, Ltd.

UNIVERSIDAD
DEL ZULIA

opción
Revista de Ciencias Humanas y Sociales

Año 35, N° 20, (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

www.luz.edu.ve

www.serbi.luz.edu.ve

produccioncientifica.luz.edu.ve