

## The effectiveness of educational units proposed using knowledge maps to obtain educational curricula subject for students of the Faculty of Basic Education

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**Keywords:** (suggested educational units, knowledge maps, achievement) Summary of the research:

This research aims to (the effectiveness of educational units proposed by using cognitive maps in achieving the subject of educational research curricula among students of the College of Basic Education).

As for the research hypothesis, "There are no statistically significant differences at the level of significance (0.05) between the average scores of individuals for the experimental group who studied the educational research curriculum using educational units proposed using cognitive maps, and the average degrees of achievement of the members of the control group who studied in the usual way in the achievement test Post-prepared by the researchers.

The two researchers followed the semi-experimental approach with the post test, and the study sample consisted of (80) male and female students and was divided into two groups, one (experimental and numbered) (40) male and female students, studied in proposed educational units using cognitive maps), and the other (control number of (40) (Male and female students, studied in the usual way), the researchers rewarded the following variables (age - gender - intelligence - previous knowledge - academic level). The researchers prepared two tools, the first being an achievement test consisting of (42) paragraphs. The two researchers studied the two research groups themselves in order to avoid the difference that may result from the difference of the professor and his capabilities, and the extent of their knowledge of the nature of the experimental variables of the experiment applied in the first semester on (1/10/2018) It ended on (27/12/2018).

The research found that (the experimental group that was studied according to the educational units proposed is superior to the use of cognitive maps over the control group students who studied according to the usual method of achievement).

In light of the research results, the recommendations were as follows:

1. Approving the proposed educational units by using the knowledge maps of educational research curricula subject to be taught in the College of Basic Education / Babylon University in Iraq.
2. Providing teaching staff in the College of Basic Education / University of Babylon with a guide that explains how to apply the proposed educational units for educational research curricula using the knowledge maps correctly.
3. Providing the teaching staff at the College of Basic Education / University of Babylon with educational methods for a knowledge mapping strategy such as (CD / PowerPoint / Knowledge Maps Guide Various forms of knowledge maps) to enable them to apply this strategy in the teaching process.

At the end of the current research, the following proposals were included:

- 1 -Building suggested educational units for educational research curricula using one of the types of knowledge maps (mental, mental). In the College of Basic Education / University of Babylon.
- 2 -Building training models using modern strategies for educational research curricula in basic education colleges.
- 3 -Study the effectiveness of cognitive maps in students 'achievement in educational and psychological subjects, a study similar to the current study in other subjects and stages of study.

Introduction to research

First: Problem of the Research:

Societies at the present time are no longer stable as before, as a result of the changes that have occurred thanks to technology and the social aspirations that precipitated this change. Educational institutions represent a prominent edifice in building and developing the personality of the individual through the educational systems it provides to establish an integrated learning model that represents The learner is at the center of the educational process, as education in this case is responsible for making the learner think effectively and well to deal with the growing and accelerating information day after day.

And the learner faces many problems in his scientific and practical life, and solving these problems needs a mind capable of thinking in an intelligent way to provide multiple solutions to the problems facing it. The educational research curriculum is one of the subjects that students may encounter difficulty in understanding and absorbing if it is taught in traditional methods that deprive them of active participation in the learning process. Therefore, the need for using modern teaching methods and strategies increases the effectiveness of teaching and raises the achievement level of students and this is what studies indicated (Al-Aboudi, 2013 and Al-Saadi, 2013). The

results of these studies indicate the poor achievement of students in educational subjects in general and the curriculum of educational research in particular, which is one of the basic materials for the "teacher" student and a major part of his tools of success in the educational process in the future, including those related to tests, measures and the student evaluation process (Al-Saadi , 2015: 23).

Through the researchers' work as teachers for more than several years, they noticed that there is a weakness among students in academic achievement and the thinking process, and to improve the educational process, work must be used to use appropriate and new teaching methods and methods that support modern trends in the educational process that make the student the focus of the educational educational process, And raise the level of achievement.

From the above, the current research problem was formulated by answering the following question:

What is the effectiveness of educational units proposed using cognitive maps in obtaining the material of the educational research method for students of the Faculty of Basic Education?

#### Second: Importance of the Research

Mankind today faces a technological and information scientific revolution that requires confronting it requires a strong scientific base that qualifies us to cope with these rapid changes that stem from this revolution, and scientific and technological progress depends mainly on the mental ability of the learner, this progress did not come by chance but rather through interest and thinking to reach many Solutions to the problems faced by the learner and making him able to organize and monitor his mental processes (Katame, 2001: 23).

Therefore, science has become a prominent role in our contemporary life, especially in the progress and development of nations, and today we urgently need to develop our teaching reality in general, our educational system cannot stand by in front of the changes and developments that occur in the global educational systems around it. The researchers believe from the above that as a result of the tremendous amount of knowledge and rapid developments in various fields of science, it has become the primary concern of educators how to help the learner to cope with these developments.

“Education plays an important role in peoples’ lives, as it is a continuous process that is not determined by a specific period of time and works to develop and modify the experiences of individuals and refine their talents and sharpen their minds, ideas and numbers in a comprehensive, integrated and balanced preparation in all mental, physical and social aspects so that they are positive individuals beneficial to themselves and their society ”(Al-Hailah, 1999: 19).

The researchers believe that one of the most important goals of any educational system is to bring about integration, inclusion and coordination between the different aspects of growth for students, to reach the goals of the educational process. And that modern education seeks to confirm the role of students in the educational process, therefore, educational curricula must keep pace with scientific and technological development, social changes and the requirements of the times and the needs of the learner, and to achieve the aspirations of society and its goals, therefore it must be absorbed to these changes and requirements and achieve what is required of them through improving and developing them And its change (Al-Khayat, 2003: 2). One of the types of curricula is the curriculum of educational units, whose publicity has become the distinguishing feature of most curricula in the world due to its many advantages, including (the student's feeling that he is studying an integrated subject. 2007: 114).

"The true renaissance in society does not take place without a review of the educational curricula in terms of content and goals from time to time".

El-Essawy et al. (2012: 12)

" These curricula are capacitive to include knowledge, experience, different skills and activities and evaluation tests, and depend on self-learning by learners and the positive and learner's activity, and the evaluation process will be varied, comprehensive and continuous, as well as making the learner a focus of the educational process and make his needs and needs of society and meet them a main goal and that the curriculum takes into account the differences Individualism among learners and makes the role of the teacher organized and directed to the educational situation as well as choosing the appropriate strategy for teaching the content of the educational curriculum

) Al-Sijri, 20015: 24.(

The researchers conclude that the curriculum is the third component of the educational process after the student and teacher, and it is the tool of education to create a conscious, thoughtful, and committed generation in the desired behaviors in society. Many countries around the world have sought to develop and change their curricula in order to keep pace with the rapid technological development, and therefore the methods of scientific and educational research It aims to help students obtain knowledge and scientific thinking skills to solve problems in their working lives, as well as developing products and materials that serve the practical field in education, and seeks to train students in organizing and assisting their ideas in a logical and proper way, Using the library and its resources, and training them for sincerity and honesty and taking responsibility for transferring information

(Ghabawi and Abu Shaira, 2010: 27)

Curricula and pedagogy of educational research have evolved with the development of humanity and its civilizations and the expansion of its perceptions and discoveries, so each civilization has a feature in that curriculum and scientific research centers have spread in the various specialties and universities and institutes represent the basis of scientific research and its teaching, as an important source for dealing with many problems or developing many cases that Society, its institutions, and individuals need it (Abboud, 2009: 20).

Adopting educational strategies that aim to increase achievement and develop thinking, and of course it is difficult to suggest strategies suitable for achieving all the goals and desired goals, because each has disadvantages and advantages, there is a wide range, and one of the strategies that the school can choose or use to achieve the goals is the strategy of knowledge maps if they are. She possesses educational and professional competencies (Al-Hailah, 1999: 262-266).

" Academic achievement is of great importance to the individual, as it is not only successful in passing successive academic stages and obtaining degrees that qualify the student to move from one class to another, but depends on important aspects as his way to choose the type of study, the profession and the social role that the individual will play. Among the modern strategies that are used At the present time to activate the human memory are maps of knowledge those maps that were defined as a tool that includes the concepts the individual educated on the topic to be learned and developed and then determine between these concepts of connections and relationships and put all of this on a sheet in the form of a map "(Abdel Bari, 2010 : 280).

Likewise, it sheds light on key words more easily and the mind finds more ease in accepting and remembering maps of multidimensional and coloring instead of written words that are boring and open the way for more discoveries and new knowledge, which encourages the continuous and infinite flow of ideas and action according to the natural desire of the human mind in Completion or inclusivity, which increases the desire and motivation to learn and clarity of the main idea in the topic, and connects the basic ideas in a continuous manner and helps to summon and review the ideas of the topics in a comprehensive and effective way (Mahmoud, 2006: 303).

The third stage in the College of Basic Education is of importance and a major role in directing the educational process and is responsible for the outputs of the learning process and provides students with the curriculum and various strategies to become a student after graduating from the College of Basic Education a successful teacher with knowledge and scientific competence in the future.

### Research objective

The current research aims to "identify the effectiveness of educational units proposed by using cognitive maps in obtaining the material of the educational research approach for students of the College of Basic Education"

### Research hypothesis:

To achieve the goal of the research, the following hypothesis was developed:

"There are no statistically significant differences at the level of significance (0.05) between the average scores of the members of the experimental group who studied the educational research methodology using educational units proposed using cognitive maps, and the average levels of achievement of the members of the control group who studied in the usual way in the post achievement test"

Search limits: The current search is limited to:

- 1 -Knowledge limit: the subject of educational research method
- 2 -The Human Frontier: third year students in the English Language Department.
- 3- Spatial limit: College of Basic Education - University of Babylon.
- 4 -Time limit: The academic year 2017-2018.

### Fifth: Definition of Terms

First: effectiveness - knew each of:

1 -Al-Douri (2003) as "the ability or competence in which a specific performance is described according to pre-determined criteria to achieve a specific goal or action"

League,( 2003: 14)

Procedural definition of effectiveness:

"It is the amount of change that is caused by the independent variable, represented by the learning outcomes obtained by the third year students in the English Language Department at the College of Basic Education from degrees in the achievement achievement test of the educational units prepared by the researchers".

Second: The educational unit: Known by each of:

-Al-Rawdhaya (2001), it represents "a set of classroom actions taken by the teacher to implement a specific academic subject, placing students in integrated educational situations that arouse their interests and require them to do various activities, leading to the achievement of a set of educational goals" (Al-Rawdhaya, 2001: 338).

Procedural definition of educational :

:units

It can be defined as (an educational subject built by the two researchers according to the units curriculum and designed in a coherent manner, including information, experiences, educational goals, activities, training and evaluation tests, and it is taught according to the strategy of knowledge maps for the third year students in the English Language Department at the College of Basic Education to achieve not the goals of the current research).

:Third: Knowledge maps: known to each of

Al-Rifai (2009) said:

"A strategy that links the information read in the books with drawings and words in the form of a map, then the idea is read in the written material and then converted to brief words mixed with shapes and colors. By looking at this paper, information can be found and extracted from them, praising the study and during exams and exams easily" (Al-Rifai, 2009: 7)

Procedural identification of knowledge maps:

"It is a teaching strategy that the researcher used to present the content of units of the educational research curriculum subject for the third year students in the Department of English - College of Basic Education for students to help them in organizing knowledge and summarizing it by inserting the main idea in the middle of a white paper and then branching from it sub-ideas using colors, images and symbols"

Fourth: Achievement: Known by each of:

Zaghloul (2003) as "the result of what the student learns after passing through the educational experience to know the success of the strategy set by the teacher to achieve his goals and the knowledge that the student reaches" (Zaghloul and Mahamid, 2003: 87)

Procedural definition of achievement:

It is the amount of what the third year students in the English Language Department obtain from the postgraduate achievement test prepared by the researchers for the units of the educational research curriculum using knowledge maps.

Fifth: Article of the educational research method:

The researchers knew it (one of the curricula taught to students in the third grades in the departments of basic education colleges in the universities of Iraq and for one semester according to the vocabulary of the public sector body).

## Theoretical framework

The concept of educational units:

"It is a teaching system that takes several weeks to learn and consists of a number of consecutive lessons that fall under a major topic or general concept that brings them together. Often the unit is in the name of this topic or that concept".

Olive, 2001: (776)

The foundations of the educational units

### 1 .Knowledge integration:

It achieves what the separate curriculum curriculum failed to achieve, which is the horizontal link that shows the experiences that are presented to the learner at any educational stage, which gives students the ability to solve their problems (Al-Makkawi, 2006: 23.)

### 2 .Find the relationship between life inside and outside the school

The curriculum in its comprehensive concept means "the sum of the experiences that are presented to the learner inside and outside the school in order to achieve comprehensive and integrated growth." Therefore, the experiences that are presented to the learner are not exclusive to the school alone because the school is a social institution, and the curriculum takes into account the relationship between life inside and outside the school.

Camel, 2000: (163-164)

### 3 .Attention to patterns of activity

The activity here refers to students intellectually, socially and practically, that activity that is not limited to the semester but extends to the environment in which students live and the activity carried out by students is a diversified activity and therefore each student finds a color of the appropriate activity for him, which means taking into account between students Of individual differences.

Al-Wakeel, 2001: (269)

### 4 .The evaluation takes place in the light of sound scientific foundations

The evaluation accompanies the study, that is, it is an ongoing process. If the units seek to achieve the principle of inclusion in the experience, the evaluation will be a comprehensive process for these aspects. And to achieve the principle of inclusion of expertise and experience, each integrated and emphasizes the modular approach to those aspects and takes into account as much as possible.

Muhammad, 1990: (202)

#### 5 .Removing barriers between subjects

The achievement of the principle of unit knowledge is the unit of study, whether focused on one of the topics or a problem of problems, the information that students reach through their studies of this unit does not include barriers or breaks, This leads to a unit of knowledge, "planning, implementation, data and information collection and analysis, discussions, use of various means, making visits, holding seminars, writing reports, and issuing decisions and judgments." And that these activities take place under the supervision and guidance of the teacher, and that the activities carried out by students are continuous and varied, which leads to their playing a positive role in the learning process.

#### 6 .The primary role of the teacher is to guide and guide students

The teacher in this type of educational unit directs and trains students to perform operations that have major educational significance such as "planning, teamwork, discussion of results". The unit also requires the teacher to intervene in a timely manner to correct some information, to clarify some ideas, or to modify the plan.

#### 7 .The learning unit links research to student life

The link of the learning unit to the students 'life leads to strengthening the school's relationship with the environment and society after this link was almost non-existent in light of the curricula of the academic subjects. Students understand the phenomena surrounding them and the problems that exist in the environment, and in this way the learning units have contributed to linking the school to the environment and society (Al-Wakeel, 2001: 270.)

The characteristics of the educational unit:

The educational unit has various characteristics that help to understand its nature and realize its goals. These characteristics are:

##### 1- Pre-planning the unit

Pre-preparation of the unit is essential for the unit because the things that are represented in the unit are difficult for the teacher to accomplish with his students during the actual work or implementation of the unit and it is not necessarily that the teacher adheres to it literally but he has to change and replace and add new experiences and activities and planning and pre-preparation for the unit.

##### 2- The unit has a theme or theme

The educational unit has a main axis. This axis may be a subject, subject, problem, project, and activity undertaken by students. The study of this axis will be from different subjects without there being a separation between them. In order for the

positive motivation for the learner to be available, the subject must relate to students' inclinations, needs and problems.

### 3- The joint cooperation between the teacher and students in planning and implementing the unit

The use of the educational unit aims to develop the group's drawing among students because the educational units are planned on the basis of joint cooperation between the teacher and students by defining the goals of the unit and the various educational activities and the distribution of work between them as well as in the evaluation process and during the implementation and teaching of the unit and discussions between the teacher and students and among the students together with Some collective actions all of this spread the spirit of cooperation among all of them and make them a positive role

Hamida et al., 1998:( 90)

### 4 -Connecting the study to life

The educational units work to strengthen the link between the student and life. For example, when studying the water unit, students will feel the need to go out to the environment to collect observations, data and appropriate facts with the subject of the unit, so they will have multiple functional and scientific experiences (Abu Hawij, 2000: 166.(

### Types of educational units

#### First - Units based on the subject

Units based on the subject matter: In this type of educational units, the course material is functional as it is represented in teaching methods and educational activities and may be prepared by the teacher himself or a group of teachers.

Al-Shafi'i and others, 2003: (304)

#### Second - educational units based on experience

This type of unit is characterized by the activity of students in it related to one of their main needs and revolves around it, and accordingly, the students accept to study the unit and perform what the types of activity require, realizing the fulfillment of this activity to their needs (Abu Hawij, 2000: 168.(

#### Three - Activity Unit

This type of unit is based on the activity of students, just as this type of unit competes with other types of teaching academic subjects such as arts, language, environmental work, social sciences, etc. It is interested in the subject and its information such as the unit of the subject, but the interest and focus revolves around the activities of students

that they perform themselves orally Clerical or practical such as projects, reports, discussions, representation, visits and others. Either these activities are collective and individual, and the unit of activity falls between the unit of the subject and the unit of experience as it relates to the inclinations and needs of students.

The elements of the educational unit

Educators differ in determining the contents and organization of the educational unit, however

There are a group of elements that many educators agree on, and they are as follows:

- 1- Address of the unit.
- 2 - Introduction.
- 3 -Behavioral goals.
- 4 - General introductory activities (preliminary.(
- 5 - Questions to arouse students' thinking.
- 6 -The basic information of the unit.
- 7- Educational activities.
- 8 - educational objects and materials.
- 9- References.
- 10- New words and phrases.
- 11 -Closing activities.
- 12- Calendar.

Al-Tashan, 1998: (356)

Steps to prepare the educational unit

The educational unit is prepared based on a number of steps, as follows:

- 1Diagnosing and identifying students' inclinations and needs.
- 2Determine the goals of the educational unit.
- 3Choosing educational experiences that are in line with the objectives set.
- 4Organizing educational experiences.

- 5 Determine the educational methods that contribute to achieving the set goals.
- 6 Develop a framework for teaching methods.
- 7 Determine the evaluation methods.
- 8 Review and adjust the educational unit plan.

Abu Hwajj, 29: (2000)

There is another opinion about preparing the educational units according to the following steps:

- 1 - Divide the curriculum into large units.
- 2 - Determine the title of each unit according to its axis.
- 3 - Evaluating the previous and subsequent units.
- 4 - Determining the students' experiences that they possess and affect their level of knowledge and their awareness of the problem.
- 5 - Carry out appropriate activities.
- 6 - Identify facts and information.

Faraj, 2005:( 140)

Research methodology and procedures

First: - experimental design:

The researchers used the experimental approach with partial control, (designing the equivalent groups of pre and post measurement in the level of happiness and open thinking effective and a dimensional test for achievement in the educational research methodology) where the experimental group is studied using a procedural educational model based on the guidelines of knowledge economy, and the control is taught in the traditional way as In the form of No. (1) as follows:

Dependent variable	Independent variable	equivalent	the group
Post-test achievement	The proposed educational units for the curriculum of educational research using knowledge	A- Time span B- intelligence	Experimental

	maps	C-Previous knowledge.	
	traditional way	d-Academic level	Control

Figure (1) experimental design for research variables

Second - The research community and its sample: Since the current research is limited to teaching the curriculum of the educational research curriculum for students of the College of Basic Education, the research community included basic education colleges who are studying the curriculum of the educational research curriculum for the academic year ((2017-2018)) where the size of the society in the records of official colleges ( 971) Male and female students.

The research sample:

Students of the third stage in the English Language Department at the University of Babylon were chosen as a sample for the current research and intentionally by the researcher as a teacher in the department, and the current research sample reached (80) students and after excluding the students who failed, the research students were divided into two groups and identified to be as follows, Division (B) represents the experimental group that is taught according to an educational model based on the directives of knowledge economics, while Division (A) represented the control group, which is taught in the usual way, and Table No. (1) shows the distribution of the sample of the research students.

Table No. (1) Distribution of research sample students

Number of students after exclusion	The people	Groups
40	B	Experimental group
40	a	Control group
80	A + B	total summation

Third: - Equivalence of the two research groups: in order to ensure the internal integrity of the current research, the researcher intends to reward the research groups in some of the variables that may affect the results of the current experiment, namely: ((time age, intelligence, previous knowledge in the educational research methodology material, scale Happiness and effective open tribal thinking scale) The researcher obtained the ages of students of the two study groups (control and experimental) through the

registration department in the college, and the ages of the two groups ranged between (20-21) years, and this means that the two research groups are equal in time age, and to verify From the equivalence of research students in the IQ variable, a sister was adopted Bar (Otis-Lennon) and codified on Iraqi university students by (Al-Badrani, 2007), and to reward the experimental and control samples in the previous knowledge variable, the researcher prepared a test consisting of (20) multiple choice paragraphs in the educational research curriculum subject, and it was presented On a group of arbitrators to extract its validity and then found for the test its stability was applied to the members of the two research groups, and last year's rates at the academic level, and Table No. (2) shows the equivalence of the experimental and control research groups.

Table (2) Remuneration of the experimental and control groups in the exotic variables that may affect the results of the experiment

Significant level of differences	Tabular value	T value	Control group	Experimental group	Treated	variable
The difference is D at 0.05	2	1.292	271.68	265.65	SMA	Age
			25.43	14.91	standard deviation	
		90.0	40.61	07.63	SMA	Intelligence
			64.7	84.8	standard deviation	
		1.15	11.85	11.35	SMA	Previous knowledge
			1.889	1.994	standard deviation	
		63.0	75.51	37.50	SMA	Academic level
			60.9	71.9	standard deviation	

From Table No. (2), the equivalence of the experimental and control research groups is evident in the exotic variables that may affect the results of the experiment. The results showed that the calculated value (t) is less than the value of the tabular (t), meaning that the two groups are equal.

External safety:

To achieve external safety for experimental design through the following procedures:

-1The researcher teaches the two research groups (experimental and control) himself during the experiment period.

-2The duration of the trial is uniform and equal for the two research groups (experimental and control).

-3Standardized measurement tools were used for the two research groups to measure achievement.

Fourth: Research requirements:

a. Determining the scientific subject: The researchers determined the scientific subject to be studied according to the vocabulary of the specific subject from the sectoral body, the second semester, and the scientific subject included as in Table No. (3):

Table No. (3) vocabulary of the article according to the sectoral body

Topic	the classroom
Introduction to Research Methods: Significance, Scientific Theory, Types of Research.	Chapter one
Scientific approaches to the scientific method, assumptions, goals.	Chapter II
The problem in research, sucking, the research problem, importance, purpose, assumptions, terms, and procedures.	Chapter III
Basis of use of references, library	the fourth chapter
Historical research method, importance, testing, material collection, sources, criticism.	Chapter V
Descriptive research methodology: steps, types, studies.	Chapter six
Experimental research methodology: its nature, settings, goals and types.	seventh chapter
A note, interview, referendum	Chapter eight
A sample, its selection, types, and size	Chapter nine
The principles of statistics in educational research	Chapter ten

The researchers adopted the methodological book (Research Methods in Education and Psychology) (Haider Hatem Al-Ajrash 2014) as the curriculum that included most of these vocabulary as well as some auxiliary approaches.

#### 1 .Goal setting and formulating them behaviorally:

The researchers formulated behavioral goals in light of the general objectives of the subject and the content of the vocabulary to be taught during the trial period, and the number of goals reached 180 goals in their initial form distributed at the six levels of Bloom's taxonomy (remember, understand, apply, analyze, synthesize, evaluate, and presented the goals to a group of experts In the field of teaching, measurement, and evaluation methods, whose number is (12) experts, to verify their coverage of the scientific subject and the validity of the goal levels within the six levels of Bloom's application, and the target is valid if it obtains the approval of (80%) of the experts, and

after the researcher has taken the amendments proposed by the experts The total number became (180) goals Behaviorally to the approval of experts on all targets.

## 2 .Prepare study plans

The researchers prepared daily teaching plans for the subjects of the proposed educational units for the curriculum of the educational research curriculum, which are taught for the experimental group and reached (25) plans, and also prepared daily plans for the book curricula of research in education and psychology, which are taught to the control group and reached (25) plans

## 3 .Preparing the achievement test specifications table (test map)

The researchers identified the relative importance of the topics in the light of the number of behavioral goals assigned to each topic, then the researcher identified the number of achievement test items with (60) paragraphs, the paragraphs of each topic were identified in light of its importance and Table No. (4) illustrates this.

Table No. (4) table of specifications for the achievement test of the educational research methodology

Number of questions in the college	Calendar 9%	Installation 11%	analysis %12	Application 15%	Understand 20%	Knowledge of 33%	Relative importance	Domains Content
8	1	1	1	1	2	2	13%	1
3	-	-	-	1	1	1	5%	2
4	-	-	1	1	1	1	6%	3
3	-	-	-	1	1	1	5%	4
5	-	1	1	1	1	1	9%	5
5	-	1	1	1	1	1	9%	6
6	1	1	1	1	1	1	10%	7
6	1	1	1	1	1	1	10%	8
5	-	1	1	1	1	1	8%	9
15	1	2	2	2	3	5	25%	10
60	4	8	9	11	13	15	100%	المجموع

## 1 .Formulation of achievement test clauses

The researcher has chosen two types of achievement tests, one of thematic of the multiple choice type, and it consists of (48) paragraphs and the other of my pans with short answers. It consists of (12) items to measure the levels of composition and evaluation, so that the total number of total test items is (60) test items distributed to the content of the article The six levels of behavioral goals are according to their relative importance in the test map.

## 2 .The validity of the achievement test paragraphs- :

After the experts were briefed on the paragraphs, all experts agreed to the validity of the paragraphs in measuring what was set for the sake of measuring it, and by more than (80%).(

Thus, the test, in its initial form, consisted of (60) paragraphs, and Appendix No. (5) clarifies this.

## D. Instructions for answering the test items

The researcher formulated the instructions for answering them, and the instructions included how to answer the test items and not leave any paragraph without an answer, and the researcher set an example that shows how to answer each question.

#### E. Exploratory experience- :

The aim of the exploratory experiment is to know the clarity of the test instructions and its paragraphs and reveal aspects of weakness in it, in terms of formulation and content and the appropriateness of the alternatives to the answer, and the time taken to answer the test and to verify that the test was applied to a sample of students from the College of Basic Education at the University of Babylon / Department of Mathematics based on (30) male and female students from the third grade were randomly chosen, and the results of the exploratory experiment resulted in clarity of the paragraphs and test instructions, while the time taken ranged between (65-80) minutes, with an average time of (75) minutes and after completing these procedures the test became Ready to apply p Z sample statistical analysis.

#### Statistical analysis of the test items:

For the purpose of analyzing the paragraphs statistically, the researcher applied the test tool to a sample of (100) male and female students randomly chosen from the sections (Arabic, English, and Geography), and the statistical analysis procedures included determining the level of test difficulty and its discriminatory strength for all the test paragraphs and the effectiveness of incorrect alternatives with respect to paragraphs Multiple choice.

##### 1 .Paragraph difficulty factor

The difficulty of each paragraph was calculated using the difficulty equation (\*) and it was found that it ranged between (30.0 - 68.0) and Bloom finds that tests are good if the paragraphs are in the level of difficulty between (20.0 - 80.0) (Madus, 1983: 107) According to this criterion, it is clear that all passages have good difficulty.

##### 1 .Paragraph discrimination coefficient

When calculating the discriminatory power of the test items, the researcher adopted the Abel criterion for a good paragraph whose discriminatory strength is 30.0 or more, and after calculating the discriminatory power of the test items, it was found that they ranged between (30.0 - 65.0) which are good discrimination factors, and Table No. (7) He explains it.

Eble, 1972: (399)

##### 2 .The effectiveness of wrong alternatives

To calculate the coefficient of the effectiveness of the wrong alternative for each of the achievement test items for a multiple choice of (48) items, the researcher used the discrimination equation, whereas the criteria that the researcher relied on to exclude the alternative is when the effectiveness factor of the alternative is positive or zero

#### Validity of the test:

##### 1. Validate the content

To verify this honesty, the researcher prepared a table of specifications in the light of which he determined the content elements or topics that should be represented by the test and the educational goals that are intended to be tested, and determine the relative

weights of each content topic, and according to these procedures enables the researcher to verify the authenticity of the content of the current research tool.

## 2 .Virtual honesty

This type of honesty was achieved when the researcher presented the test items to a number of experts to assess their validity.

## 3 .The sincerity of the construction

To verify this type of honesty, the researcher relied on the differential strength index and the difficulty factor of the paragraphs for the test items by retaining the paragraphs that have a distinctive force and acceptable difficulty, and excluding the weak paragraphs.

### Test stability:

To extract consistency in this way, the researcher applied the fakronach equation to the scores of the sample individuals of (100) students, so the value of the test stability factor (83.0) was a good stability factor.

### Executing the experiment:

After preparing the study requirements and preparing their tools, the researcher started the actual application of the experiment in the first semester on (1/10/2018) and ended on (27/12/2018).

### Statistical means:

To process data, the researchers used the Statistical Package for Social Sciences (spss) in data processing.

the fourth chapter

View and discuss the results

First: Presenting and discussing the results:

The research objectives were verified in light of the following hypotheses:

(There are no statistically significant differences at the level of significance (0.05) between the average scores of the members of the experimental group who studied the educational research methodology using educational units proposed using cognitive maps, and the average levels of achievement of the members of the control group who studied in the usual way in the post achievement test and to verify this The hypothesis used the T-test for two independent samples (test T), and it appeared that the mean of the experimental group scores has reached (45.5000) and the standard deviation (10.162), while the mean of the control group scores (32.525) and the standard deviation (12.251) and the The calculated T value (5.155) is greater than the tabular value of (2) at the significance level (0.05).

Table (5) arithmetic mean, standard deviation, variance, and positive value (calculated and tabulated) for students of the two research groups in the achievement test

Significance level of difference	Tabular value	Calculated	Degree of freedom	standard deviation	SMA	the sample	the group
The difference is D at 0.01	2	5.155	78	10.162	45.500	40	Experimental
				12.251	32.525	40	

Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. The hypothesis that states that there are statistically significant differences is found at the level of significance (0.05) between the average scores of the members of the experimental group who studied the educational research methodology using educational units proposed using cognitive maps, and the average degrees of achievement of the control group members who They studied the usual way in the .post achievement test

The value of the effect size using the ETA squared on the achievement test ((0.504)), which is a large and appropriate value, and indicates that a large percentage of the differences are due to the independent variable in achievement and in favor of the .experimental group

Second: Interpreting and discussing the results

:From the results of the research, it can be explained by the following

-1The effectiveness of the proposed educational units for the educational research methodology using the use of knowledge maps, and this is evident through the high levels of achievement tests and the post test, and thus the experimental group that studied the educational units by using knowledge maps outperformed the control group that studied the educational research curriculum material, and this result was for the enjoyment of educational units It has several characteristics represented by clarity, ease of implementation and acceptance by students, their interests and capabilities, and their training in planning, working, group learning and cooperation between them during the learning process. This was in agreement with the opinion of (Al-Shafi'i and others 2003: 308) and (Al-Ruwadiya 2001: 388).

-2The proposed units contributed to the development of the scientific and cognitive aspect and the provision of comprehensive and integrated information about the educational research methodology subject to the experimental group due to the existence of several characteristics of the study units which are clarity, ease of implementation and acceptance by students and their interest in the integration of aspects of knowledge and components of the part and its focus on the learner activity and taking into account the tendencies and interests and capabilities and training them To plan, work, group learn and collaborate during the learning process. This is consistent with the opinion of (Al-Shafi'i et al. 2003: 308.)

Three - Conclusions, recommendations and proposals

Conclusions:

In light of the current research results, I conclude the following:

1. That the use of knowledge maps that depend on the activation of brain functions helped raise the level of students 'achievement in the educational research methodology and raise the level of interest and eagerness to study the proposed vocabulary of the educational research methodology (during the experiment.)
2. The proposed educational units for the vocabulary of the educational research methodology and knowledge mapping strategy require educational aids and

means and experience and its competence with the teaching staff more than traditional strategies and methods.

#### Recommendations

According to the results of the research, I recommend the following:

- 1- Approving the proposed educational units using knowledge maps of the curriculum of educational research curriculum to be taught in the colleges of basic education.

#### The proposals

- 2- At the end of the current research, include the following proposals:
  - 1- Building suggested educational units for educational research methodology using one of the types of cognitive maps (mental, mental). At the Basic College / University of Babylon
  - 2- Building a unit reference for the educational research curriculum subject in the basic education colleges
  - 3- Study the effectiveness of cognitive maps in the achievement of students of the College of Basic Education in the subject of mental health.

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