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## **THE EFFECT OF USING THE GLOBAL CAFÉ STRATEGY ON THE ACHIEVEMENT OF SIXTH- GRADERS IN SCIENCE SUBJECTS AND THE DEVELOPMENT OF THEIR CREATIVE THINKING**

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### **Research Summary:**

The research aims to find out the effect of the global café strategy's effectiveness in the achievement of sixth grade students and the development of their creative thinking. To achieve the aim of the study, the researcher adopted the experimental method. The research sample consisted of (50) pupils of Al Samaha Primary School for Boys, (25) pupils for the experimental group that taught according to the strategy of the global café, and (25) pupils for the control group that taught according to the traditional method, and the equivalence between them was investigated in variables. (1. Age 2. Previous achievement 3. Examination of previous information 4. Creative thinking) An achievement test of (20) items was prepared in multiple-choice items, and it was presented to a group of arbitrators and experts to ensure the validity of the test. A test map was prepared. The reliability factor was calculated for the test and was (0.79). A creative thinking test was also prepared, consisting of 6 activities, each activity indicating an educational situation in which one of the creative thinking skills (fluency, flexibility, originality). Its validity and reliability were verified and the

reliability coefficient was (0.77). The results of the research showed the superiority of the experimental group, which is studied according to the strategy of the global café, over the control group, which is studied according to the usual traditional method. In both achievement tests and creative thinking, the research recommends several recommendations, including the adoption of modern teaching strategies represented by the global café strategy. Similar studies have been proposed in different scientific subjects and other study stages or in variables such as scientific thinking, critical thinking, and the trend towards a subject. Sciences.

**key words:** 1.Strategy, 2.The Global Café, 3.Achievement  
4.Creative thinking

## Chapter One

### First: The problem of the research

The era in which we live is an era of rapid changes, and these changes have brought to light a huge amount of information, as the world witnesses the development of technology and accelerated information,

The educational system had to keep pace with these changes in order to reach individuals who are able to face these changes and developments and adapt to them properly (Al-Farag and Dababneh, 2006: 125)

There are some important trends on which the development process is based, such as the development of the student's positive role and his ability to participate, search and rely on himself, in the form of educational development and strategies, To ensure that, introduce one the modern strategies, which is the Global Café. Which puts a lot of direct education in the hands of the pupils instead of the traditional method under the supervision and guidance of the teacher? It provides students with an opportunity to learn more through educational experiences outside and inside the classroom. (Al-Sayeed, 2002, 113).

The primary science curricula have witnessed several changes, as these changes were reflected in the vocabulary of the school curriculum, especially the science curriculum for the sixth grade.

Consequently, these changes affected the methods of teaching science, and because the science book for the sixth grade of primary school includes many activities and concepts that require the use of many educational methods that can ensure the development of creativity among students. Thus, teaching science requires adopting a variety of methods and means according to the diversity of subjects. Nevertheless, science subject teaching still does not achieve a high educational level, by following up the traditional methods in teaching, which led to a lack of interaction between students and their teachers, and the practical participation in the educational process and lead to the low level of achievement in the subject of science, Which is one of the most important indicators that directly affect the educational process. (Hamdan, et. al, 2013).

Human minds are real wealth, and their investment leads to progress, advancement and coping with this large amount of cognitive information and facts, it is necessary to develop the creative thinking skills of students. (Al-Rasam, 2012: 21).

In view of the importance of thinking, the mental process is sophisticated in the development of the individual, many opinions and theories have emerged that explain the dynamics of the thinking process, and many strategies have been proposed that work to develop creative thinking skills, Science is one of the important study subjects, which needs to develop through training teachers and qualifying them to use a variety of teaching means and methods that work to highlight the content of the science curriculum in an interesting and effective way and an attempt to stimulate the creative thinking of the teacher and the student.

(Ambu Saeedi and Al Balushi, 2009: 7).

Hence, we try to present a modern teaching strategy, which is the global café strategy, because of its effective importance in sharing

and reorganizing the content in a way that ensures positive interaction.

The research problem determines the answer to the following question:

(What is the effect of the global café strategy on the achievement of sixth-grade students in science subjects and the development of their creative thinking)?

### **Second: The Importance of Research**

Science education has witnessed rapid development in order to keep pace with the rapid development process, and it will not be feasible unless it relies on transforming the scientific material into realistic experiences that the pupils go through in the classroom so that the information is more firmly grounded and more relevant to themselves. (Najdi and others, 2005: 34).

In view of the pupils' variation in their physical, mental, personal and social characteristics, the need to use modern teaching models and strategies that work to make the educational process successes.

This requires the presence of a teacher working to give a lectures and a student who receives this information and works to treat it by himself, and developing science curricula in line with their mental development and their directions and using the best modern methods of teaching,

It contributes to increasing students' interest in educational content and increases their desire to teach and improve their performance, due to what may be added from the excitement and suspense to students. (Hilal, 2018: 57)

And inventing new methods of teaching is an urgent and necessary matter to facilitate the process of learning science, Which prompted those interested in the field of education to employ modern strategies that would make the student active in his educational practices, and in line with the conditions of the students, their potential, and educational and physical abilities. (Zayer 2014: 27)

Also, education in general, and science education in particular, does not depend on the transfer of scientific knowledge to students. But, it is a process of the student's cognitive, skill and emotional development.

In order to be integration in the personality of the students and to teach the student how to think and how to save information in order to realize that knowledge and apply it in his life, and attention to the intellectual side they have in order to be active and responsive to issues and problems of life effectively and prepare it for life. (Zaytoon: 2005: 13).

This research derives its importance on the following:

1. The research is considered a response to recent trends and educators' recommendations regarding the necessity of updating and adopting teaching strategies that ensure diversity of education and towards better education.
2. Trying to search for combining the global café strategy and helping students develop creative thinking.
3. Its importance for the age stage targeted by the research (sixth grade of primary school), as it is an important stage for exploration and acquisition of the necessary facts in the science subject.
4. Encouraging the development of creative thinking skills, as it is one of the goals that modern teaching seeks to achieve.
5. The age in which we live is characterized by scientific and technological developments, and as a result of this continuous scientific development it has become necessary for any educational system to keep pace with these developments and the requirements of the modern era, and to meet the needs of society, The educational system has witnessed many reforms and innovations to meet the scientific progress required in developing and introducing modern strategies that stimulate creative thinking among students. (Al-Hela, 2008: 21).

### **Research Hypotheses:**

To achieve the research goal, formulate the following hypotheses:

1. There is no statistically significant difference at a significance level (0.05) between the average scores of the experimental group, which is taught according to the global café strategy, and the average score of the control group, which is studied according to the traditional method of post-achievement test.
2. There is no statistically significant difference at a significance level (0.05) between the average scores of the experimental group students, which are taught according to the global café strategy, and the average scores of the control group students, which are taught according to the traditional method of the post thinking test.

### **Research limits:**

The current research is limited to:

1. A sample of sixth-grade primary students in (Al-Samaha Elementary Boys School), belonged to the Baghdad Governorate Education Al- Rusafa Al-Aula.
2. The first term of the academic year 2019-2020.
3. The chapters (the first unit - Chapter 1,2 and the second unit - Chapter 1,2).

### **Research goal:**

The research aims to identify:

The effect of using the global café strategy on the achievement of sixth-graders in science subjects and the development of their creative thinking.

### **Defining terms:**

#### **1. Effect:**

Defined by (Sabry-2002): is the ability to achieve the intended goals and reach the desired results. This term is used in the educational and learning fields, means, methods, strategies and training models. (Sabry, 2002: 410).

#### **2. Strategy:**

A-define it, Al-Hela (2008): It is a set of procedures, activities, and methods that the teacher chooses and plans to follow one by one, in

a sequential manner, using the available abilities to help students master educational goals.

(The Al-Hela, 2008: 150).

### **3. The Global Café: Defined by**

A- (Brown & Isaacs, 2005): It is a simple process of gathering the individuals together around questions which related to our affairs. Brown & Isaacs, 2005: 9)

B - Defined by Tan & Brown (2005): It is a simple process dialogue but effective conversation it helps individuals to participate in dialogue, build personal relationships, enhance cooperative learning, and discover new possibilities within work. (Tan & Brown, 2005: 83)

### **4. Achievement:**

A- Defined by Shehata and Zainab (2003): It is the amount of information and knowledge that the student obtains, expressed in degrees in the prepared test in such a way that the specified levels can be measured. (Shehata and Zainab, 2003: 89).

B - Defined by Abd Al Aal(2012): that it is an organized plan that includes means and methods that the teacher takes to achieve the required goals. (Abd Al- Aal / 2012: 15).

### **5. Creative thinking:**

A-Zubaidi defined it (2012): as a mental process accompanied by stimulation and emotion by which the mind organizes the student's experiences and information in a creative way that enables him to reach what is new and useful.

(Al-Zubaidi, 2012: 17).

As recent trends in education indicate the importance of creative thinking and its role in the educational process, and creative thinking is important in building knowledge and transforming the process of acquiring knowledge into a mental activity that leads to better mastery of the content of the science subject, and stimulating

students to creativity and find correct explanations in what they learn in the science subject. Collecting information and using it in a better way for the benefit of the student in his life. (Razuki et al., 2019: 11-19).

Since teaching according to modern strategies makes the teacher's role different from the role he plays in traditional education and employing his potentials, it needs to be distinguished in his performance in the classroom to create a comfortable environment for students to learn to acquire new experiences.

It has increased emphasis on the use of active learning strategies, which include a group of activities that students follow in order for the learning to be beneficial. (Kojak et al., 2008: 101).

The diversity in the followed up strategies teaching increases pupils' activity and their integration into the classroom, and improves their achievement and interest in the classroom, which contributes to the survival of the learning effect for a longer period and encourages them to be creative. (S'aada, 2015: 23).

And make the classroom with an effective educational form, rich in experiences that pave the way for students to participate in taking responsibility and make it the basis and focus of the teaching process. (Abu Ghraib, 2007: 127).

Among the modern strategies that improve the level of achievement and develop the creative thinking of students is the use of the global café strategy

It is one of the active learning strategies that make the classroom educational in nature and enable pupils to understand topics, which leads to effectiveness among the smaller groups in building and consensus of opinions.

(Robers and others, 2015: 22-23).

## **Chapter Two**

### **The Theoretical Framework and previous studies**



## **First - Theoretical Framework**

### **1- The Global Cafe Strategy**

#### **Global cafe concept:**

It is one of the active learning strategies. The idea of the strategy is based on the existence of a task that all students do, but everyone must participate in it through the process of moving the students, one group, from one place to another.

With the group coordinator remaining in his place without moving until he gives a summary of the ideas presented by the previous group on the question given to it when the new group comes.

(Ambu Saidi and Hoda, 2016: 55)

Both (Samantha and Juanita) indicated that the international café is a simple conversation process, but at the same time very effective, as it promotes cooperative education and helps students to participate in constructive dialogue, in addition to that, the global café produces dialogues, and thinking in creative form as a part of one connected dialogue, and discover a new events , Cafe's global spread has resulted in a modern and futuristic method. (Tan, Brown, 2005: 85).

In the global café, the parts are linked in an active and advanced way, which is an easy-to-use process, and the results are exciting, in which the conversation takes place on a small table by arranging groups in small conversations,

As in cafes, they are allowed to move between groups and exchange ideas, and link events related to the topic through exciting questions, and the ideas are all left on the small table, In

this way, it will be the participation of ideas while moving between the tables in several rounds. (Brown, 2002: 191)

As for the method of talks in the global café, it is able to reduce the distance and the stronger and less powerful in a constructive and practical way, leaving them free to innovate and encourage creativity, and motivating them to the questions that revolve in the mind, heart and soul, creating an equal playing field so that everyone can contribute, even though sitting at the small table encourages the constructive desire that already exists in society, Being sitting in cafes in the past and presenting their ideas and everything that goes on in their minds and imaginations and what is going on in themselves, with the provision of hospitality such as coffee and tea, which encourages the formation of positive bonds, and here we notice the success of that work. (Vogt, et al. , 2003: 13)

The method of dialogue in the global café provides an environment that celebrates and nourishes differences, and learns what connects us with each other, this helps to understand the true meaning of the power of empowerment that is generated through seeing new ties and building relationships between peers. It is a human activity, and it can ask a question and the response is any place where the participating students sit in this café, and it depends on proactively, it sends enthusiasm and passion, It contributes to moving forward through conversation, reaching mutual understanding between them and determining meaning through hierarchies. (Tan, Brown, 2005:89).

The Global Café is an effective tool for conversation, enhancing capacity for education, community adaptation, reviewing conversation and participation, leading to the knowledge that has been created. (Liza, Anna, Christine, 2016: 1).

### **Global Cafe design:**

There are seven principles that can be relied upon in designing a global coffee shop and they are:

#### **1. Set the context:**

There are some questions that should be taken in consideration in Preparing a Global Café:

Q / What are the axes that need to be dealt with?

Q / How are the totals distributed in the conversation management?

Q / What is the time required to complete the conversation?

Q / Determine the lines to be followed?

Q / What are the topics that stimulate creativity?

Q / What are our perceptions of the results?

Q / design the outcome path?

#### **2. Create a space for hospitality:**

Choosing the best places, and therefore it should be attractive and ventilated, with natural lighting and comfortable seats, and allow for freedom of movement to present the best ideas, and the topic is guaranteed with questions and it is possible to use colors and graphics, and the atmosphere of the global café can be defined as follows:

1. The cards are distributed randomly.
2. Tables are arranged similar to cafe.
3. Cover the tables with suitable mattress .

4. Putting signs on the tables to encourage pupils to write.
5. Play some favorite music that helps them think deeply.
6. Prepare papers in an orderly and decorated form.

### **3. Explore the important questions:**

Exploring questions that help to push and attract collective energy (the power of observation, perception, conclusion, and correct solution to the problem), as it moves gradually through conversation rounds based on the scheduled time of the conversation.

### **4. Encouraging the participation of all participants:**

As each participant in the global café represents an aspect of the diversity of the entire system, and because each person has the opportunity to communicate in the conversation and activate his role in a clear and significant way and be influential by his presentation to the group.

### **5. Fertilization of ideas:**

This is done by linking different points of view by presenting each student his point of view and listening to the ideas that arise and which are written on the papers of each table, and in this case as MULLER indicates that the pupils who participate in the tour go to working papers with a different coordinator and with the progress of the tours. Conversations pollinate ideas and produce amazing results. The coordinator is a person standing at the table and at each round he can summarize the conversation of the previous round to the students who come again at each round. Those departing from the group are allowed to carry what they have absorbed from the tour, so that each student will keep his previous summaries. The global café can weave a network of communications in a short

period of time, as if it were a travel trip in which the group travels to a new table carrying with it this fabric and these threads intertwine with each other, producing a high level of new ideas.

#### **6. Listen together for new models and ideas:**

The desire to listen will be more important to the success of the global café, as it calls for the active participation of every student who expresses what is within him, so that everyone submits to the fact that every talker is like a wise man and the rest of the students at other tables are more attentive to what they hear and provide support to the speakers and participate in the dialogue with him .

#### **7. Exchange of new collective discoveries:**

The conversations that were recorded in the papers on the table reflect the completion of the talks in the other papers, as there must be time to think about what he gained through the movement of rounds between all the tables

Allow everyone to participate with all the information they got on the topic and record important notes in every paper or write it on the blackboard so that everyone can read and see it, and it allows an exchange of views, as it allows a method of reflective thinking to reach deeper results.

#### **Steps to implement the Global Cafe strategy:**

1. The teacher determined questions related to the lesson that students will answer in groups.
2. The teacher informs how the strategy works or the mechanism if it was applied for the first time.

3. The teacher asks students to form groups, and each group selects a coordinator for it.
4. The teacher presents a worksheet and then asks them to answer the first question within a certain period of time.
5. teacher ask students to mover from table to another, but with the coordinator
6. when the students come to the coordinator of the origin group who provide them a summary about the results on previous group which dealt with first question, and ask students for addition before move to second question, (with taking in consideration the time is limited for every question).
7. The process continued till the group finish to solve all the questions, then the teacher began to discuss the students where they reach.

(Ambo Saeedi and Huda, 2016, P.56).

### **-Creative thinking:**

Creative thinking is defined as the mental process that is used to obtain new ideas and insights, or that leads to the merging of ideas and things. (Al-Mizan, 2002: 40).

There is comparison between creativity and creative thinking, but creativity is the result of creative thinking. When a new creative idea appears, the mental process that led to that idea is called creative thinking. (Al-Suwaidan and Muhammad, 2002, 67).

### **The importance of developing creative thinking among students:**

The development of students' ability to think creatively is the most important goal of education, and some see it as the way that helps

them solve the problems of daily life that they face. (Al-Shammari, 2002: 3).

As education is the process of documenting the link between the student and his environment, for the purpose of obtaining a student who carries the principles and values of society, and since the pupils in the elementary stage are the seed of that society, it is necessary to work on developing these skills in order for the society to achieve what they aim to. (Al-Zayat, 2009: 87)

### **Objectives of developing creative thinking among students:**

1. The development of creativity is the responsibility of the school and concern for students' abilities.
2. The prevalent characteristic in life is rapid change, and the knowledge and skills that the student will need in the future may not be known to the student, so the school must encourage flexibility, openness to new and the ability to adapt and search for new ways to do things and be courageous about unexpected things.
3. Helping the student to deal with the challenges of life and the resulting stress and tension. (Afana and Youssef, 2009: 2).

### **Creative thinking skills:**

Creative thinking includes three main skills, they are fluency, flexibility and originality, which are included in the Torrance Scale of Creative Thinking:

#### **1- Fluency:**

It is the ability to generate a number of good and correct ideas for a case or problem, its end is free or open, the fluency includes the quantitative aspect of creativity, and it refers to the multiplicity of ideas that the student can bring up or the ease or speed with which

certain repercussions are called, During a specific period of time, the creative mind appears as if it is always firing shots of appropriate new ideas,

The appropriate ideas and answers are distinguished by their suitability to the requirements of the real environment, and therefore random ideas and answers must be excluded, for example (write the largest possible number of heat-conducting metals).

## **2. Flexibility:**

It means the ability of the individual to change the state of mind by changing the situation, and flexibility is characterized by the ability to generate a variety of responses, which indicate unfamiliar uses of something familiar, Flexibility includes the qualitative aspect of creativity, and flexibility is the opposite of mental Rigidity. flexibility required , open-mindedness, and the ability to be transparent towards the submitted subjects.

## **3. Originality:**

It is the ability for unique expression, and the production of distant and skilled ideas more than common ideas and for a specific period of time.

It is the distinction and uniqueness of the idea and the ability to penetrate beyond the direct and familiar of the ideas. Therefore, the less common the idea, the greater the degree of its originality, and it is the most characteristics associated with creative thinking. (Hassan, 2014: 73).

## **Skills used by the teacher to develop creative thinking:**

Psychologists agree that all normal individuals have creative abilities, but they differ in their levels of possession of those



abilities, and if I want to develop creative thinking, a classroom environment must be prepared that stimulates innovation in which the student feels psychologically safe. Students' questions must be accepted and reinforced, and the teacher should follow the following procedures:

1. **Stirring up the students' fertile imagination**, by showing solutions that contribute to stimulating the fertile imagination around them. Thus, this fertile imagination makes the student work freely, to find new interactions, seeing and visualizing things that were not clear before that, because imagination is a strong partner for creativity.
2. **Postponement of judgment**, so that the teacher does not judge on the students' responses directly, but rather for another period, and a realistic and constructive criticism of the presented ideas must be held. Without harm student's personality in thoughts that are not harmonized with the nature of the lesson, so that this does not reflect negatively on his personality.
3. The teacher helps pupils to be sensitive to problems (social, cognitive and personal). The first pillar of the creative thinking process is sensitivity to problems.
4. Developing pupils' curiosity, and curiosity is the tendency to know things. Knowledge is fun and often useful.
5. Building the students' challenge side in facing problems.
6. Questioning solutions and treatments of the problems

7. Presenting realistic problems from the reality of society that affect the lives of students, that this the problem should be specific. (Al-Zubaidi, 2012: 15)

### **Obstacles of creative thinking:**

The most important obstacles to creative thinking are:

#### **1. The internal psychological factor,**

As soon as an individual persuades himself he can't provide any thing, There is a feeling inside himself that he cannot do anything.

#### **2. Difficulty determined the problem:**

Determined the problem accurately and clearly is the most important step in solving that problem, and the difficulty lies in the effort made to solve.

#### **3. The tendency to determine the problem narrowly:**

The cultural stock and the previous perceptions in some cases must be an obstacle to creative thinking, so whoever wants to think creatively must not limit the problem to a narrow field and within the limits of his knowledge, but rather go beyond that to objectivity in submission and thinking.

#### **4. Fear of criticism:**

Many of those who have creative ideas do not express what is in the components of their ideas for fear of error and criticism, and this is a great obstacle to launching the creative ability to think because the sense of problem and responsibility are the most important features of the creator.

#### **5. Lack of challenge and enthusiasm:**

Creativity is, in fact, a reaction to an existing problem, or challenge, to generate a set of creative ideas produced. Those who do not have the enthusiasm and challenge cannot be creative.

#### **6. Habits:**

Customs are the cultural stock of societies, so if there are reasons, good and creative habits will be produced.

#### **7. Time:**

The time factor is important, and the shortage of time prevents many works. A creative person can divide his deeds during one day. (Afana & Youssef, 2009: 167)

Methods of developing creative thinking:

One of the most popular methods of developing creative thinking is:

1. Mental description.
2. The Six Hats.
3. Smart questions.
4. Roles and personalities (represented by the global café).
5. Mental and physical relaxation.
6. Mental focus. (Al-Zubaidi, 2012: 15).

#### **Second: Previous studies**

##### **Hameed Study (2020)**

The research aims to identify the effect of the global café strategy in the achievement of chemistry and productive thinking among first-grade students, and for the purpose of achieving the research goal, the following two null hypotheses were formulated:

1- There is no statistically significant difference at the level of significance (0.05) between the average score of the experimental group that is taught according to the strategy of the global café and the average score of the students of the control group that is taught according to the usual traditional method of achievement test for the subject of chemistry.

2- There is no statistically significant difference at the level of significance (0.05) between the average scores of the students of the experimental group that is taught according to the strategy of the global café and the scores of the students of the control group that is taught according to the usual method of the productive thinking test.

The semi-experimental design with partial control was adopted for two groups (experimental and control) with a post-test for each of the achievement in the subject of chemistry and productive thinking.

The research community is represented by intermediate first grade students in middle and high schools in Al-Mechanik district belong to the General Directorate of Education Baghdad / Al-Karkh /2 for the academic year (2019-2020)

The two groups were rewarded with several variables, and an achievement test consisting of (40) items of a multiple-type test and a productive thinking test consisting of (15) items were prepared.

The validity and reliability of the two tools were verified after they were presented to a group of experts and arbitrators, and the results showed the superiority of the experimental group that was studied according to the strategy of the global café.

### **Chapter Three**

#### **Research Procedure**

This chapter deals with a description of the procedures used in the research in terms of adopting the appropriate experimental design, the research community, the method for selecting the sample, the methods of equivalence of the two research groups, and a presentation of the research requirements and tools, how to apply them, and the statistical methods used to analyze the results.

##### **First: Research methodology:**

The experimental approach was adopted in this research as it is the appropriate approach to the nature of the research.

##### **Second: Experimental design**

Selecting the experimental design is one of the first step that fall on the researcher's responsibility when conducting a scientific experiment, researcher depended on experimental design of the dimensional choice of the two research groups (experimental control group) to be partially controlled as compatible with the research requirement was adopted.

**Figure (1)**

**Shows the distribution of the two research groups according to the approved experimental design**

| Seq. | Groups             | Equivalent  | Independent variable | Dependent variable | Research tool                 |
|------|--------------------|---|----------------------|--------------------|-------------------------------|
| 1    | Experimental group | 1- Chronological age  | Global café          | 1- achievement     | 1-Post achievement test       |
| 2    | Control group      | 2- Previous achievement<br>3- previous Test information<br>4- The pre creative test | Normal method        | 2- creative method | 2-Post creative thinking test |

### **Third: The research community and its sample:**

The (Al-Samaha Primary Boys' School) was intentionally chosen to be an area of research for several considerations, including:

- 1- It contains several classrooms for the sixth grade
- 2- Knowledge of the school administration and its teachers, which guarantees full cooperation and assistance in conducting research and assistance in overcoming expected difficulties, and the research community may have consisted of two sections of the sixth grade, where the number of students in each of classes (A and B) was respectively (26, 27).

Where the group (A) was chosen randomly to represent the experimental group, and the number of students reached (26) students,

Where was excluded (a student) from those who had failed for the past year, and section (B) represented the control group,

The number of students reached (27) students, from whom (two) who had failed, were excluded.

Therefore, the number of the final sample members became (50) students, Table (1).

**Table (1)**

| <b>Groups</b>       | <b>Section</b> | <b>No. of students<br/>Section</b> | <b>No. of students<br/>excluded</b> | <b>No. of students of<br/>final<br/>research</b> | <b>Teaching<br/>style</b>                                     |
|---------------------|----------------|------------------------------------|-------------------------------------|--|---|
| <b>Experimental</b> | <b>A</b>       | <b>26</b>                          | <b>1</b>                            | <b>25</b>  | <b>Strategy of<br/>global café<br/><br/>Normal<br/>method</b> |
| <b>Control</b>      | <b>B</b>       | <b>27</b>                          | <b>2</b>                            | <b>25</b>  |   |
|                     |                | <b>53</b>                          | <b>3</b>                            | <b>50</b>  |   |

Fourth: The statistical equivalence between the experimental and control groups:

The equivalence of the sample members was confirmed in some variables that may have an effect on the dependent variable, and these variables are:

**1-Chronological age**

**2- Previous achievement**

**3- Previous Test information**

**4- The pre creative test**

The two groups were rewarded with each of the following:

**1- Chronological age (by months):**

The chronological age of the members of the experimental and control groups was obtained from school files, It was clear that the average age of the experimental group members was (141.28) months and varied (6.96), and the average age of the control group was (140.8) months, and varied (9.25), and to find out the significance of the difference between these two averages, using "t-test" for two independent samples, It was shown that the difference was not statistically significant at the level of significance (0.05),

as the calculated T value (0.566) was smaller than the tabular T value of (2.0106) and with a degree of freedom (48) Table (2).

**Table (2)**

**The results of the t-test for the two groups of research in the variable of age, calculated in months**

| Groups       | Sample volume | Arithmetic mean | contrast | Degree of freedom | T- Test    |         | Indication level |
|--------------|---------------|-----------------|----------|-------------------|------------|---------|------------------|
| Experimental | 25            | 141.28          | 6.96     | 48                | Calculated | Tabular | Not a function   |
| control      | 25            | 140.8           | 9.25     |                   | 0.566      | 2.0106  |                  |

### 3- Previous Achievement

It means the grades of the research sample in the fifth primary class in science subject, as the mean of the experimental group scores was (78.28) with a variance of (169.8), While the average score for the control group was (76.96) with a variation of (203.6), and when using the t-test for two independent samples to find out the significance of the statistical difference between the scores of the students of the two groups, It was clear that the difference was not statistically significant at the level of (0.05), as the calculated T value (0.341) was smaller than the tabular T value of (2.0106), and with a degree of freedom (48), This indicates that the experimental and control groups are statistically equivalent in the previous achievement variable. Table (3).



**Table (3)**

**The results of the t-test for the two groups of research in previous achievement**

| groups       | Sample volume | Arithmetic mean | contrast | Degree of freedom | T- Test    |         | Indication level |
|--------------|---------------|-----------------|----------|-------------------|------------|---------|------------------|
| Experimental | 25            | 78.28           | 169.8    | 48                | Calculated | Tabular | Not a function   |
| control      | 25            | 76.96           | 203.6    |                   | 0.341      | 2.0106  |                  |

#### **4- The Test of previous information:**

To verify from the sample members' possession of previous information related to the subject of science, a test for previous information was prepared. It consists of (20) objective items of the multiple choice type, The safety of the test was confirmed, as it was presented to a group of experts and judges, and the test was applied on Wednesday 10/26/2019,

The mean of the experimental group scores was (5.32) with (9.22) variance, and the average score for the control group was (5.08) and with (8.076) variance.

And when using the t-test for two independent samples to find out the significance of the statistical difference between the scores of the two groups,

It was shown that the difference was not statistically significant at the level of (0.05), as the calculated T value (0.288) was smaller than the tabular T value of (2.0106).

With a degree of freedom (48), this indicates that the experimental and control groups are statistically equivalent in the previous information variable. Table (4).

**Table (4)**

**The results of the t-test for the two groups of research in previous Information**

| group<br>s       | Sample<br>volume | Arithme<br>tic mean | contrast | Degree of<br>freedom | T- Test        |             | Indication<br>level |
|------------------|------------------|---------------------|----------|----------------------|----------------|-------------|---------------------|
| Experi<br>mental | 25               | 5.32                | 9.22     | 48                   | Calculat<br>ed | Tabul<br>ar | Not a<br>function   |
| control          | 25               | 5.08                | 8.076    |                      | 0.288          | 2.010<br>6  |                     |

#### **4- Pre- Creative Thinking test:**

For the purpose of knowing the equivalence of the two research groups (experimental and control) in the variable of creative thinking, the researcher adopted the Torrance Verbal Test for Creative Thinking

Because It is suitable for the Iraqi environment and is characterized by honesty and stability as a result of its application in local environments. The test included (8) activities describing creative thinking capabilities (fluency, flexibility, originality). It has also been verified from apparent truth also verified by presenting it to a number of experts, and the test was applied on Thursday (27/10/2019) for reward, When comparing the mean scores of the two groups, it was found that the average scores of the experimental group students reached (48.96) and variance (111.95), and the mean scores for the control scored (48.32) and variance (122.97).

And using the t-test for two independent samples to find out the significance of the statistical difference between the scores of students in the two groups, it became clear that the difference was not statistically significant at the level of (0.05), Since the calculated T value (0.2087) was smaller than the tabular T value of (2.0106), and with a degree of freedom (48), This indicates that the

experimental and control groups are statistically equivalent in this variable. Table (5).

**Table (5)**

**The results of the t-test for the two groups in creative thinking**

| groups           | Sam<br>ple<br>volu<br>me | Arithmeti<br>c mean | contrast | Degree of<br>freedom | T- Test    |         | Indication<br>level |
|------------------|--------------------------|---------------------|----------|----------------------|------------|---------|---------------------|
| Experimen<br>tal | 25                       | 48.96               | 111.95   | 48                   | Calculated | Tabular | Not a<br>function   |
| control          | 25                       | 48.32               | 122.79   |                      | 0.2087     | 2.0106  |                     |

### **Fifth: Research Requirements**

#### **1- Determined the content of teaching subject:**

Before starting the implementation of the experiment, the subject of science book the sixth grade of primary school (for the 2019/2020 academic year) was determined and consisted of (the first and second units) and consisted of:

The first unit: the characteristics of living organisms: consisted of:

First Chapter: Natural reproduction in plants

Lesson two: vegetative propagation

Chapter Two: Artificial Reproduction in Plant

Lesson One: Reproduction by division and Vaccination

Lesson two: generation by Palm shoot

The second unit: the human body and health: It consisted of:

Chapter One: Organs in the human body

Lesson 1: The nervous system and its health

Lesson 2: The skeletal system and its health

Lesson three: The muscular system and its health

Chapter Two: Sense in Humans

The first lesson: the sense organs

Lesson two: Skin structure and functions

## **2- Determined Scientific Concepts:**

After determined the educational subject and analyzing the content of the chapters that make up the subject, a set of concepts were identified

It included all the major and minor concepts included in the subject included in the research experiment, and the number of concepts were about (25) concepts.

## **3- behavioral purposes:**

A set of behavioral objectives have been derived to cover the topics of the established subject and by making use of the general goals set for the elementary science subject

The number of (30) behavioral purposes were presented to a number of arbitrators and some of them have been amended.

## **4- Preparing teaching plans:**

The researcher prepared the teaching plans for the two research groups and presented them to a group of experts and specialists to judge their validity and suitability. The number of plans reached (9) study plans in light of the five-year plan.

## **Sixth: The two research tools:**

The first tool: Building an achievement test:

An achievement test was prepared, according to the course content of the science book developed for the sixth grade of primary school, consisting of (20) items of a multiple-type test, the achievement test was prepared according to the following steps:

1. Determine the educational subject.
2. Preparing behavioral goals.
3. Preparing the test map (table of specifications).

From the requirements of the current research is the preparation of a test map that guarantees comprehensiveness and validity of the distribution of its items and their representation of the prescribed educational subject,

Therefore, the researcher determined the time spent for each of the chapters of the prescribed subject of the science book scheduled for

the sixth grade of primary school and for the first three levels of knowledge in Bloom's classification (remember - comprehend - apply)

The weights of the class content were determined based on the opinions of the group of teachers specialized in teaching that subject.

As for the goals weights, it was determined by the percentage of behavioral goals at each of the three levels, according to the contents of each chapter, the achievement test items were divided into (20) test items, Table (6).

**Table (6)**

**Specifications table (test map)**

| Chapters     | No. of pages | Content weight | Behavioral goals |              |             | total     |
|--------------|--------------|----------------|------------------|--------------|-------------|-----------|
|              |              |                | Knowledge        | Comprehended | application |           |
|              |              |                | 40%              | 33%          | 27%         | 100%      |
| Unite one    | 30           | 43%            | 3                | 3            | 2           | 8         |
| Unite two    | 41           | 58%            | 5                | 4            | 3           | 12        |
| <b>Total</b> | <b>71</b>    | <b>100%</b>    | <b>8</b>         | <b>7</b>     | <b>5</b>    | <b>20</b> |

#### **4- Validity of the test items:**

The test achievement was an (20) items that were presented to the arbitrators (experts) specialized in methods of teaching science, measurement and evaluation, and some items were modified in light of their opinions

#### **5- Exploratory test:**

Each of the (achievement test and creative thinking test) was applied to an exploratory sample consisting of (48) students from a school

(Nageeb Pasha primary and belong to Baghdad Governorate Education / Rusafa Al-Awal) on November 5, 2019.

#### **6- Statistical analysis:**

Appropriate statistical methods were used according to the spss program.

### **7- Test validation:**

The validity of the test was verified as follows:

**A- Apparent validity:** To verify the validity of the test, the test items were presented to a group of arbitrators and specialists in education and teaching methods in order to verify the validity of the test, and an 80% agreement percentage was adopted to determine the validity of the items.

**B - Validity of the content:** It was based on preparing a test map (table of specifications), to find out the extent to which the items represent the content of the prescribed course and behavioral goals, where the tests are considered valid if they represent the content of the subject matter and the goal that you measure

### **8- Test stability:**

To calculate the stability in using equation Keodrichardson - 20 (KR-20).

It is a good method to calculate the proportions of correct and wrong in the test items,

The coefficient of stability was 0.79 and it is considered a good coefficient of stability.

Second - The Second Tool: Preparing the post Dimensional Creative Thinking Test:

1. Determine the goal of the creative thinking test:

The aim of the test is to measure the creative thinking skills of sixth grade students.

2. Determined creative thinking skills:

Creative thinking skills were determined according to what was dealt with in most previous studies (fluency, flexibility and originality).

3. Formulating items of creative test.

4. Instruction of Post-creative thinking test correction

Has been put a model to correct students' answers by giving each student four scores as follows:

**a. Fluency score:** is measured by the learner's ability to mention the largest possible number of appropriate answers, and at a specific time minus the repeated answers that have nothing to do with the subject of the test, Thus, one score is given for each answer, so the highest score is (40) and the lowest score is (0).

**B. The degree of flexibility:** It is measured by the individual's ability to vary the appropriate answers, and the greater the number of various answers, the greater the degree of flexibility

One score is given for each type of answer, regardless of the number of ideas that belong to that type, and one score is given for each idea. So the highest score is (40) and the lowest score is (0).

**C- The degree of originality:** It is measured by the student's ability to give uncommon (strange) answers compared to his colleagues Thus, the degree of originality is high if its frequency is few, Thus, the ratios of authenticity, as set by Torrance, are the highest (20) and the lowest (zero).

**D. Statistical analysis:** Appropriate statistical means were used.

**E- Stability of the creative thinking test:** The reliability of the test was verified using the Alpha Cronbach equation To calculate the reliability coefficient, as the reliability factor of the test reached (0.77), which is a good reliability coefficient.

### **Seventh: Application**

1. The experiment: The experiment was applied from the date of October 26, 2019 until December 26, 2019, and the average teaching of the two research groups was at the rate of three lessons per section in (3) weeks.

2. The achievement test was applied on 28/12/2019 to the two research groups simultaneously after the research sample members were informed of the exam date in advance and the correction was done according to the researcher.

3. The post creative thinking test was applied on 12/29/2019 to the two research groups simultaneously after they were informed of the exam date in advance and corrected according to the form.

#### **Eighth: Statistical Means:**

The researcher used in the research procedures and analyzed the following statistical methods:

1. The use of the T-test for two independent samples for comparison between the two groups in both the achievement and creative thinking tests.
2. Difficulty coefficient equation: used to calculate the difficulty factor for the test items (achievement and creative thinking).
3. Discrimination equation: used to calculate the strength of distinguishing the items of the achievement test and the creative thinking test.
4. Equalizing the effectiveness of the wrong alternatives.
5. Kuder Richardson-20 equation: used to find the overall stability of achievement test.
- 6- Cooper's equation: to calculate the percentage of the arbiters' agreement on the items of the achievement test, the creative thinking test.
- 7- Alpha Cronbach equation: used to calculate the stability test of creative thinking.

### **Chapter Four**

#### **Presentation Results and Their Interpretation**

In order to achieve the goal of the research in identifying the effect of the global café strategy on the achievement of sixth-grade students and the development of their creative thinking, the results will be presented and interpreted.

#### **First: Presentation of results:**

##### **The first hypothesis:**

1. There is no statistically significant difference at a level of significance (0.05) between the average scores of the experimental group students who studied according to the "Global Cafe



Strategy” and the average scores of the control group students who studied according to the “normal method” in the post-achievement test. To verify this hypothesis, the “t-test” was used for two independent samples, and the statistical results showed a difference between the mean scores of the experimental group of (12.48) with a variance (33.01) and the average score of the control group students, which reached (8.04) with variance (19.123). Table (7).

**Table (7)**

### Arithmetic Means

**The arithmetic mean and standard deviation of the two research groups (experimental and control) in the post-achievement selection**

| groups           | Sam<br>ple<br>volu<br>me | Arithmetic<br>mean | contrast | Degree<br>of<br>freedom | T- Test    |         | Indication<br>level<br>(0.05) |
|------------------|--------------------------|--------------------|----------|-------------------------|------------|---------|-------------------------------|
| Experimen<br>tal | 25                       | 12.48              | 33.01    | 48                      | Calculated | Tabular | function                      |
| control          | 25                       | 8.04               | 19.123   |                         | 3.074      | 2.0106  |                               |

It is clear from the table that the average of the experimental group that was studied according to the strategy of the global cafe in achievement is higher than the average of the control group that studied by the usual method.

The calculated value of (t) reached (3.074), which is statistically significant at the level of (0.05) because it is greater than the tabular value of (t), which is (2.0106)

Therefore, the difference between the two groups is in favor of the experimental group that used the global cafe strategy thus rejects the null hypothesis and accepts the alternative, Which proves the

existence of statistically significant differences in favor of the experimental group members,

This is because of the impact of this strategy in activating the positive role of the learner within the educational process through classroom and home activities and direct learning, provided by the strategy through the learner's reliance on self-learning methods to allow the student to learn according to his ability and speed in learning.

### Second hypothesis

There was no statistically significant difference at a significance level (0.05) between the average scores of the experimental group students who studied according to the (Global Cafe Strategy) and the average scores of the control group students who studied according to the (regular method) in the creative thinking test.

To investigate this hypothesis, a t-test was used for two independent samples, and the statistical results showed a difference between the mean of the experimental group scores of (36.4) with variance (68.41) and the average of the control group's scores, and the adult (27.6) with variance (63.83), Table (8) ).

**Table (8)**

**The arithmetic mean and standard deviation of the two research groups (experimental and control) in the choice of creative thinking**

| Groups       | Sample volume | Arithmetic mean | contrast | Degree of freedom | T- Test    |         | Indication level (0.05) |
|--------------|---------------|-----------------|----------|-------------------|------------|---------|-------------------------|
| Experimental | 25            | 36.4            | 68.41    | 48                | Calculated | Tabular | function                |
| Control      | 25            | 27.6            | 63.83    |                   | 3.826      | 2.0106  |                         |

It is clear from the table that the average of the experimental group that was studied according to the global café strategy in the

variable of creative thinking is higher than the average of the control group that was studied according to the usual method.

The calculated value of (t) reached (3.826), which is statistically significant at the level of (0.05) because it is greater than the tabular value of (t) of (2.0106). Therefore, the difference between the two groups is in favor of the experimental group that used the global café strategy, so it rejects the null hypothesis and accepts Alternative

This means that the global café strategy had an effect on developing creative thinking in its aspects (fluency, flexibility, and originality) among sixth graders.

For what the global café strategy provided in building a new intellectual environment that expanded their capabilities and worked on developing the creative thinking of the student compared to traditional methods.

### **(Effect Size)**

It is a number or evidence of the importance of the research result, such as the strength of the relationship between two variables or the amount of change resulting from the intervention of the independent variable in the dependent variable, by using one of the measures of the size of the statistical effect according to the research sample (related or unrelated samples and to measure the size of the effect of independent groups by calculating the  $(\eta^2)$

#### **1- Achievement**

#### **2- creative thinking**

#### **1- Achievement**

$$\text{Square } (T^2) = (3.074)^2 = 0.16$$

$$(\eta^2) = \frac{(T^2)}{(T^2) + \text{freedom degree}} = \frac{(3.074)^2}{(3.074)^2 + 48}$$

#### **2- Creative thinking**

$$\text{Square } (T^2) = (3.826)^2 = 0.23$$

$$(\eta^2) = \frac{(T^2)}{(T^2) + \text{freedom degree}} = \frac{(3.826)^2}{(3.826)^2 + 48}$$

**Table (9)**

### shows the size of the Level Effect

| Size effect |        |       | Used Management      |
|-------------|--------|-------|----------------------|
| Small       | Medium | Large | Square ( $\eta^2$ )= |
| 0.01        | 0.06   | 0.15  |                      |

When calculating the size of the effect and comparing it according to Table (9), we note that the effect of the global café strategy on the achievement variable, which equals (0.16), the size of the effect was large, and we note that the variable effect of creative thinking was equal to (0.23), which is a very large effect.

### Second: Conclusions:

In light of the results of the research, we conclude the following:

1. The use of the Global Café strategy is important in providing interaction between the teacher and the learner, which helped improve students' achievement, especially in the science subject.
2. The possibility of adopting the global café strategy as a teaching strategy that works to develop creative thinking skills for learners.

### Third: Recommendations:

1. The necessity of updating teaching methods and using modern teaching strategies.
2. The necessity of employing technical skills in education and employing them in teaching.
3. The necessity of accustoming the student to take responsibility for his learning through activating his role during the educational process and not being satisfied with the usual methods of memorization and indoctrination.

### Fourth: Suggestions

1. Made a study dealing with the Global Cafe strategy in stages and other study subjects.
2. Held a study that deals with the strategy of the Global Cafe and other teaching strategies.

3. Held a study that deals with other variables such as tendencies, scientific thinking, retention, and the trend towards science subject.

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