

The effect of the Gallery Walk strategy in the achievement of fourth-grade scientific level students in biology

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group who studied according to the usual method in the achievement test in the subject of biology

Therefore, the researchers recommend some recommendations and suggestions .

Chapter One : Definition of Research

1. The problem of research: The era in which we live is characterized by technological progress, scientific development and rapid changes in all aspects of human life. As a result of this continuous development, our educational system faces real challenges in order to keep pace with the requirements of this era as well as to meet the needs of society. The educational system has witnessed many innovations and reforms in order to face those knowledge and technological expansions that have been represented by the development of teaching methods and reliance on modern strategies, including those that develop the mental capacity of learners to deal with the realities of science and associated techniques (Zeitoun,2007 :21), as the reality of the educational process in our schools is still traditional compared to all the trends and changes that have occurred in knowledge and teaching methods (Al-Hasnawi,2019 : 13)

The adoption of the usual method of teaching, which is education that focuses on conservation and indoctrination in many schools, which focuses on the amount of information given to the learner as a listener only, leads to a decrease in their level of achievement, and this has been confirmed by previous studies such as the Shajeri Study (2017)and the Hamid Study (2021), whose results showed a decrease in student achievement in biology .

The research problem is determined by the following question:

What has been the effect of the Gallery Walk strategy in the achievement of fourth-grade scientific students in biology?

2. The importance of research : The era of accelerating changes and developments that we

Research Summary: The current research aims to identify (the effect of the Gallery Walk strategy in the achievement of fourth-grade scientific students in biology)

To verify this, the following null hypothesis was developed:

1 – "There is no statistically significant difference at the level of (0,05) between the average achievement scores of the experimental group students who studied according to the strategy of the Gallery Walk and the average achievement scores of the control group students who studied according to the normal method in the achievement test"

The researchers adopted the experimental design with partial adjustment and the post-test of the two experimental groups

And the officer, where the two researchers chose the preparatory martyr Amnah of the Directorate General of Education in Babylon Governorate and in a deliberate way, and in a randomized way, a division (C) was chosen to represent the experimental group that will study biology according to the strategy of the Gallery Walk, and the number of its students is (30) students, while Division (B) represented the control group that will study biology according to the usual method, and the number of its students is (32) students, the researchers conducted a parity between the students of the two research groups in the following variables (advance information, previous achievement in biology, and intelligence) and the experiment was conducted in the first semester of the academic year (2021-2022)

After the completion of the experiment and the application of both the achievement test for biology and obtaining the results, the data were statistically processed using the t-test for two independent samples and the following results were reached

Students of the experimental group who studied according to the strategy of the Gallery Walk outperform the female students of the control

order to correctly access information and knowledge with minimal effort and time

3. Objective and hypothesis of the research:

The research aims to identify :

The effect of the Gallery Walk strategy in the achievement of fourth-grade scientific students in biology

For the purpose of verifying the objective of the research, the following zero hypothesis was formulated:

(There is no statistically significant difference at the level of (05, 0)between the average achievement scores of the experimental group students who will study according to the Gallery Walk strategy and the average achievement scores of the control group students who will study according to the normal method in the achievement test. "

4. Research Limits: The current research was limited to :

1- Human limit: - Fourth-grade scientific students in a secondary school for girls with safe breasts.

2- Spatial Limit: - Government day preparatory schools for girls affiliated with the General Directorate of Education in Babylon Governorate.

3- Time limit: - The first course of the academic year (2021-2022 AD).

4- Knowledge Limit: - The first five chapters of the Biology Book for the fourth scientific grade | the ninth edition | and chapters (I, Classification of living organisms _ II , Ecology and Ecology _ III , Food Chain_ V , Factors affecting the environment _ VI , Adaptation of the animal to the environment

5 : Definition of terms :

2: Gallwry walk strategy: Defined by (Attiyah, 2018) : "It is one of the strategies of active learning based on the philosophy of cooperative learning, and means that learners accomplish the tasks of education by describing their achievements and summaries of their work in large papers similar to the papers of the wallcharts" (Attiyah :2018 : 319)

Procedural definition: It is a teaching strategy and represents one of the active learning strategies adopted by the researcher in teaching the students of the experimental group for the fourth scientific grade the first five classes of biology according to the steps (defining the task, distributing the learners in groups, explaining the rules of work and organizing the presentation environment, and

witness and the emergence of modern technology from time to time makes it imperative for the state to deal with education and learning as a process that is not limited by time or place and continues with the human being as a need and necessity to facilitate its adaptation to the developments that occur in his environment (Jarwan , 24: 2007) and see(Rady, 2018) that the curriculum of biology is one of the natural sciences that has a great effect in addressing different problems and works with other sciences to simplify the world in which we live to serve humanity, and therefore it is necessary to make an amendment and change in the curricula of education in terms of its methods of teaching to keep pace with change and development (Rady, p. 229, 2018)He added (Support: 2009) that the introduction of modern strategies in teaching contributes to changing the role of the learner from a passive recipient of information only to a positive and participating in the educational process (Support: 2009 : 21)

The strategy of the touring exhibition (Gallwry Walk) is one of the strategies that return to active learning based on cooperative learning and that the factor that led to the success of this strategy is the provision of a state of psychological and procedural readiness and also the success of the teacher in identifying tasks, texts and duties that are effective and raising the level of learners' achievement (Attia : 2018 : 67) Recently, the focus on achievement has become the focus of everyone's attention, starting with the family, society, the teacher and the student himself, and it has become the main measure that we rely on to know the student's intelligence, brilliance and superiority. It has also become the indicator of the student's success in school and social life (Nasrallah : 2010 : 15)

From the above, the importance of the research can be summarized as follows :

- Recent trends in teaching in general and the teaching of biology in particular call for the importance of using modern methods in the development of teaching and in addressing criticisms directed against the traditional methods currently used in most schools, which focus on the role of the teacher as a teaching material and marginalize the role of the student and limit his interaction within the classroom
- One of the modern methods in teaching biology is the Gallery Walk strategy, where the Gallery Walk strategy relies on cooperative learning in

1- The teacher should search and think about questions about a key concept or concepts around which the lesson revolves

2 - Before the lesson, write the questions on several large papers the size of the newspaper and stick them on the walls of the classroom so that there are appropriate distances between each newspaper and another so that there are no random gatherings

3. Tell learners about the instructions of this strategy

4. Divide learners into groups and provide each group with a different colored pen from the other groups, as learners in one group participate in solving the activity and the teacher asks students in each group to distribute the tasks among them, for example : the leader , the recorder , the course, the monitor , the officer, the delegate

5 - Start roaming the Gallery periodically on the papers and write comments by the registrar, provided that he is keen to leave a place in the paper for other groups to write

6- The teacher monitors the students' progress, when the groups rotate, the teacher encourages them to discuss and participate, and the teacher is ready to reformulate the questions if asked to do so and provides guidance to the groups that did not understand the activity

7 - Return to the starting point, learners continue to turn around and watch the comments of previous groups and write their comments according to the previous steps until each group returns to the starting point and then sit in their places to prepare for writing the report

8- Writing the report, each group writes a report on their observations, writing and discussions during the rotation, and the teacher allows students to write the report within (10) minutes by the registrar and all of them to participate in preparing it

9- Measuring the learners' understanding, during the reporting stage, the teacher clarifies the concepts if they are not clear to them as required and corrects common and incorrect concepts (Al-Shammari,2011 : 101 – 102)

The second topic : Previous studies

- Previous studies related to touring exhibition strategy

Table (1) shows the studies that dealt with the strategy of the Gallery Walk

1- Zakiah's study (2015) in Indonesia: This study was conducted at the University of Saltega – Indonesia and aimed at enhancing students' speaking skills using the strategy of the Gallery

starting work)to help the students raise their academic achievement

4: Achievement: Defined by : * (Al-Tamimi and Zaid, 2019): "It is a set of knowledge and skills obtained and developed through academic materials, which is usually indicated by test scores or scores that are developed by teachers or both" (Al-Tamimi and Zaid :2019 :32)

Procedural definition: It is the amount of biological information acquired by the students of the research sample for the fourth scientific grade and is measured by the degree to which the students obtain in the achievement test prepared for this purpose

Chapter Two /Background of Theory and Previous Studies

The first topic : Active learning

Active learning has received the attention of many concerned with education until the issue of interest in it has become a prevalent phenomenon in the educational environment, which has resulted in many definitions of active learning, including

- It is the process of engaging students actively and directly in the learning process, especially in reading, writing and reflective thinking, where students participate in it instead of receiving information in its various forms (Attia, 2018 : 29)

1 - The strategy of the Gallery Walk: It is one of the active learning strategies based on cooperative learning, and it is also called the walking exhibition. This name came in terms of form and principle, where the working papers can be displayed on the walls of the hall in a way that allows roaming and does not create a state of crowd when visiting the exhibit from other groups, where the working papers can be displayed on the tables of the groups. This strategy emphasizes the role of the learner in the learning process and its effectiveness. It raises the motivation of the learners to learn in a way that provides a space to move and view the work of others and provides opportunities to share and exchange information or on the tables of the groups, which is the best in terms of controlling the system and organizing the roaming and moving between exhibits (Attia, 2018 :320). This strategy is considered a successful method when the learners are well prepared for it and when the teacher is convinced of the effectiveness of its use (Abu Al-Hajj and Hassan,2016 :97)

Strategy Steps:

achievement and development of archaeological awareness among first-grade students (Al-Anibaki and Ayman, 2020)

2- The study of Muhammad (2020) in Iraq : This study was conducted at the University of Babylon – Iraq and aimed at identifying the effect of the strategy of the Gallery Walk on achievement and logical thinking skills among second-grade students in science, and this study was applied to the second-grade students, where the size of the research sample was (68) female students, chosen by the researcher by random appointment, and in order to achieve the goal of the research, the researcher prepared an achievement test tool and logical thinking test, and after the completion of the experiment, the researcher analyzed the results statistically and using the test that for two independent samples to know the difference between the two tests, as the results showed that there was a difference between the average of the two tests and was in favor of the students of the experimental group in the post-test, and this indicates that the strategy of the Gallery Walk has a role in increasing the achievement and logical thinking skills of the second-grade students (Muhammad, 2020)

Chapter Three: Research Methodology and Procedures

Experimental Design

Experimental design is the traditional approach to quantitative research procedures, in order to reach sound and accurate results, and the experimental design is taken according to the nature of the subject and the conditions of the sample (Alyan and Ghunaym, 2004 , 53)

Therefore, the researcher adopted the experimental design with partial control, i.e. the design of the experimental and control groups and those with the test, and as shown in Table (2)

group	Équivalence	Independent variable	Variable, dependent
Experimental group	- Advance information - Previous Collection	Touring Gallery Strategy	Collection
Control group	Yes, brains.	The usual way.	

Table (2) Pilot Design

preparatory schools for girls in Babylon Governorate for the academic year (2021-2022), which number (34) schools and the number of female students of the research community reached (8381)

The **research sample** is part of the research community, which is representative of the

Walk, and this study was applied to tenth grade students where the number of students of the research sample was (34) students, chosen by the researcher by random appointment, and for the purpose of achieving the goal of the research, the researcher prepared a cognitive achievement test tool, and upon completion of the experiment, the researcher analyzed the results statistically and used a T test to find out the difference between the two tests, as the results showed that there was a difference between the two test averages and was in favor of the experimental group students in the post-test, and this indicates that the strategy of the Gallery Walk had a role in enhancing the skill of speaking among tenth grade students (Zakia, 2015)

- Arab studies dealing with the strategy of the Gallery Walk:

1- The study of Al-Abaki and Ayman (2020) in Iraq : This study was conducted at the University of Diyala – Iraq and aimed at identifying the effect of the Gallery Walk strategy on achievement and the development of archaeological awareness among first-grade students in the social subject, where the study was applied to first-grade students, and the size of the research sample was (60) students, chosen by the researchers by random appointment, and in order to achieve the goal of the research, the researchers prepared an achievement tool and the measure of archaeological awareness, and after the completion of the experiment, the researchers analyzed the results statistically and using the test that for two independent samples to know the difference between the two tests, and the results showed that there was a difference between the average of the two tests and it was in favor of the students of the experimental group in the post-test, and this indicates that the strategy of the Gallery Walk has a role in the

3: - The research community and its sample:

- The research community means all the elements or individuals that the researcher wishes to design the results of the study on them (Manzel and Gharabia,2010 : 101)The current research community represents all fourth grade scientific students in government day

experiment on two equal groups so that there are no differences between the sample members of the two groups (experimental and control) except by entering the experimental or independent variable on them (Obaidat et al., 1998 : 246). In order for the research results to be accurate and clear, the students of the research sample of the two groups (experimental and control) were statistically rewarded before starting the experiment in a number of variables.

1- Advance information for biology :

The researcher prepared a test of prior information and relied in the wording of its paragraphs on the subject of biology for the fourth scientific grade. The test included (25) paragraphs of the type of multiple selection. To ensure its safety, it was presented to a group of arbitrators in the light of their opinions and directives. Some paragraphs were amended and the test was ready for application

Table (3) The significance of the differences between the two research groups in the advance information

group	Sample Individuals :	Arithmetic mean	Variance	Freedom degree	T value		Significance level
Experimental group	30	13,066	22,543	60	Calculated	tabular	Not significant
Control group	32	13,562	19,731		425	2,000	

for the second intermediate grade for the academic year (2019-2020), the researcher obtained the grades of students from the grades records in the school as shown in Table (4)

Table (4) The significance of the difference between the two research groups in the previous achievement of biology

group	Number of individual's Sample	Arithmetic mean	Variance	Freedom degree	T value		Significance level
Experimental group	30	75,300	154,330	60	Calculated	tabular	Not significant
Control group	32	73,593	218,625		490	2,000.	

researcher applied on (Thursday) corresponding to (11/11/2021) the Raven matrix test for successive matrices to compare the degree of intelligence of the two research groups Table (5)

elements of the original community, as the results of that sample can be circulated to the entire community and make inferences about the research community (Al-Tamimi,2018 : 96). The research sample consisted of (62) female students distributed in both control and experimental groups, with (30) female students in Division (C), which represents the experimental group, and(32) female students in Division (B), which represented the control group and by random appointment

_ Equivalence of the two research groups: It is necessary and one of the important procedures in experimental research in order to provide an acceptable degree of internal validity of the experimental design. The external variables are variables that will affect the dependent variable (Al-Azawi, 2008 : 115) and the dependent variable is affected by the characteristics of the sample members who are being tested. Therefore, the researcher must conduct the

2- Previous achievement in the subject of biology : To verify the equality of students of the experimental and control groups in the previous achievement in the subject of biology

3 – IQ test: _

Intelligence is defined as: a general innate ability, or a general factor that affects all types of mental activity, regardless of the subject and form of this activity (Ali, 2011, 308) The

Table (5) Indicates the difference between the two research groups in the intelligence test

group	Number of individual's Sample	Arithmetic mean	Variance	Freedom degree	T value		Significance level 05
Experimental group	30	37,466	91,489	60	Calculated	tabular	Not significant
Control group	32	35,843	54,834		0.750	2,000.	

1- Selection of sample members: The researcher worked to avoid this factor in the results of the research, by conducting statistical equivalencies between the students of the two research groups in some variables, due to the economic and social conditions of the students, which are almost similar, in addition to the fact that the students are from one social environment, as well as the random selection of the research sample.

2- Accompanying accidents: The experience in this research did not suffer from any emergency or accident that hinders its progress, so it did not have an effect on the dependent variable next to the independent variable, and thus it was possible to avoid the effect of these factors

3- Subject : The two research groups studied the same subject and it is part of the book's chapters of (5) chapters (classification of living organisms, environmental science and ecosystem, food chain, factors affecting the environment, animal adaptation to the environment)from the book Biology for the fourth scientific grade (2018), ninth edition, Ministry of Education, Republic of Iraq

4. Teaching : The two researchers themselves taught the two research groups to ensure the safety of the experience from the effect of students on the differences resulting from the personal methods and characteristics of teachers.

5- Confidentiality of the experiment : The two researchers agreed with the school administration and the school of the subject to maintain the confidentiality of the experiment, because of its effect on the accuracy of the results of the experiment. The researcher did not tell the students about the nature of the research and its purpose, but rather showed the students that it is a school on the school staff or a lecture so that the students' activity or their dealing with the experiment does not change, and then affect its results .

6- The duration of the trial : The duration of the trial was equal for the students of the two groups, which is the first course of the academic year (2021-2022), as the trial began on

2. Adjustment of experiment conditions and associated incidents:

It means all the accidents and circumstances that the members of the research sample are exposed to during the period of application of the experiment, which may prevent them from continuing the experiment, as the members of the research sample were not exposed to any accident that affects the dependent variable only the effect of the independent variable on it

3- Adjusting the measuring tool: The researcher adopted an achievement test tool, and the achievement test was applied at the end of the experiment to find out the effect of the independent variable on this dependent variable, and after ensuring its validity and stability at the same time and under similar procedures and conditions

4 - Adjusting the processes related to maturity : Some of the physiological, biological and psychological variables that occur in the environment of the human individual and these natural changes are considered to occur in most individuals of the same age (Melhem, 2000 : 398)where there was no effect of the maturity factor on the progress of the research experiment because the duration of the experiment was one for both groups in the research, it lasted (8) weeks, and this short period does not affect the maturity factor in students

5- Experimental extinction: It means the effect resulting from or generated by the abandonment or interruption of some students during the trial period, which affects the average achievement and thus affects the results of the research (Al-Zuba'i et al., 1981 : 98)

This factor had no effect except for some very small absences, and equally between the two research groups

2- External safety of the experimental design: The researcher set the variables that the researcher believes may affect the dependent variable and thus affect the integrity of the experiment and in order to preserve the external safety of the experimental design, the two researchers did the following :

Measuring and evaluating female students and their achievement is an integral part of the educational process. In order to obtain appropriate information related to female students' abilities and achievement, teachers must be able to design good tests and be able to manage these tests, correct them and interpret their results (Khader , 2006 : 371)

This research requires the preparation of an achievement test in the subject of biology to measure the achievement of the students of the two research groups at the end of the experiment to find out the extent of the effect of the independent variable in the dependent variable, so the researcher prepared a test based on the behavioral objectives and the content of the subject , and it corresponds to the level of the research sample

2– The test validity : The validity of the test is one of the important means of judging the validity of the test , and it is the first criterion for the good construction of the evaluation tool, as well as objectivity and consistency. The honest test is meant "if he was able to measure the extent to which the educational and cognitive objectives of the study material that was successfully developed for it were achieved." To ensure the validity of the test, the researcher adopted two types of validity, namely, apparent validity by presenting the test paragraphs to a group of arbitrators and giving their opinions about the test paragraphs and their suitability, as there were (40) paragraphs of the type of multiple choice with four alternatives, and amendments were made to some paragraphs and according to the opinions of the arbitrators

3 – The exploratory application of the achievement test: The researcher applied the achievement test to a sample of fourth-grade scientific students from the same research community, and the sample number was (30) female fourth-grade scientific students in Al-Madhatiya Preparatory School for Girls affiliated with the Directorate General of Education of Babylon, and determined Tuesday (18 |1 |2022) in order to verify the clarity of the test paragraphs and instructions, and to calculate the average time taken to answer them. It was found that all the test paragraphs are clear and understandable, as well as his instructions and that the average time taken has reached (42) as follows : The average time = $1284 \div 30 = 42$ minutes

After verifying the clarity of the test items and instructions as well as knowing the time required

Wednesday, corresponding to (10 |11|2021), and ended on Sunday, corresponding to (23|1|2022)

7- Distribution of classes : The two researchers controlled the effect of this factor in the experiment through the equal distribution of lessons between the two research groups. The two researchers studied (6) lessons per week at the rate of (3) lessons each. The two researchers agreed with the school administration to organize the classes of the two groups (experimental and control) on Mondays, Wednesday and Thursday.

5 : Identification of research requirements: -

1- Determining the scientific material: Before the start of the experiment, the researcher developed the scientific material that she will study for the students of the two research groups, and the first six chapters of the book of Biology for the fourth scientific grade scheduled to be taught in the Republic of Iraq for the year (2018) The ninth edition and the researchers committed to the scheduled article of the book: (Chapter 1 Classification of living organisms, Chapter 2 Ecology and Ecosystem, Chapter 3 Food Chain, Chapter 5 Factors Affecting the Environment, and Chapter 6 The Adaptation of Animals to the Environment)

2- Preparing behavioral goals: The researcher has formulated (156) behavioral goals based on the educational goals and the content and topics of the biology subject that will be studied in the experiment, distributed at the six levels in the cognitive field of Bloom's classification (knowledge, understanding, application, analysis, composition, evaluation)

3 – Preparation of teaching plans: Since teaching plans are one of the requirements for successful and proficient education, the researcher prepared (48) teaching plans for the experimental and control groups, which dealt with the plans prepared for the experimental group (teaching plans according to the strategy of the Gallery Walk) to teach biology for the fourth scientific grade in light of the content of the textbook and behavioral purposes, and plans according to the normal method of the control group

6 : The research tool This research required the preparation of a tool in order to measure the dependent variable(achievement) and in what follows is an explanation of what the researcher has done to prepare it

1. Construction of achievement test clauses

the difficulty coefficient, the excellence equation, the effectiveness equation of the wrong alternatives, the Pearson correlation coefficient, and the effect size equation

Chapter IV - Presentation and Interpretation of Results

Findings

- Results related to the hypothesis that states : (There is no statistically significant difference at the level of significance (0,05) between the average achievement scores of the experimental group students who studied according to the strategy of the Gallery Walk and the average achievement scores of the control group students who studied according to the usual method in the achievement test), where the two researchers found the arithmetic average and the variation of the scores of the students in the control and experimental groups in the achievement test in biology, and using the T-test for two independent samples, where the T-value was as in Table (6)

Table (6) The results of the test to find out the significance of the difference between the average scores of the experimental and control research groups in the achievement test

group	Sample Individuals	Arithmetic mean	Variance	Freedom degree	T value		Significance level 05
Experimental group	30	27,6	26,378	60	Calculated	tabular	Statistically D
Control group	32	22,156	50,069		3,447	2,000.	

reject the first zero hypothesis and accept the alternative hypothesis that states that (There is a statistically significant difference at the level of significance (0,05) and between the average scores of the experimental group students who studied according to the strategy of the Gallery Walk and the average scores of the control group students who studied according to the usual method in the achievement test for the experimental group

- **Interpretation of results :** The results shown in Table (6) showed the superiority of the experimental group students who studied according to the strategy of the Gallery Walk over the control group students who studied according to the usual method in the achievement test

3. Conclusions: From the findings of the two researchers, they concluded the following :

1- The presence of a positive effect of the Gallery Walk strategy in increasing the

to answer them, the test was applied to a second exploratory sample, the sample consisted of (100) female students of the fourth grade scientific in the Zahra Girls' Preparatory School of the General Directorate of Education in Babylon on Wednesday, 19 |1 |2022, to extract the psychometric properties of the test, as the researcher informed the students in cooperation with the school administration of the date of the test three days before it was conducted and the researcher supervised its application in cooperation with the school of the subject

7 : The application of the experiment: The researcher applied the experiment to the students of the experimental and control research groups starting from Wednesday (10/11/2021) until Sunday (23/1/2022) in the first semester of the academic year (2021/2022) and by three sessions each week for each group

8 : Statistical means: The test of two independent samples and the Kowder Richardson equation 20 were used to calculate the stability coefficient of the achievement test,

Where the mean score of the experimental group students was (27,6) and a variance of (26,378). As for the students of the control group, the mean score of their scores was (22,156) and a variance of (50,069). Although the average score of the experimental group students was higher than the average score of the control group in the achievement test, the researcher wanted to know the difference between the average scores of the two groups to test the validity of the hypothesis mentioned. Using the T-test for two independent samples, it was found that the difference between them was statistically significant at the level of significance (0,05), as the calculated T-value (3,447) It is greater than the tabular value (2000) at a degree of freedom (60), between the average scores of the biology test among the experimental and control group students and was in favor of the experimental group and as shown in the previous table, this means that there is a significant difference in favor of the experimental group students, and therefore we

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achievement of biology material for fourth grade scientific students compared to the usual method
 2 – Teaching according to the strategy of the Gallery Walk gives equal opportunities to students through their positive participation in the activities of the lesson, thus taking into account individual differences

3 – The possibility of adopting the strategy of the Gallery Walk by the teachers of biology with the available resources available in the school

4 : Recommendations : Through the findings of the research, the researcher came up with the following recommendations:

1. Using the strategy of the touring exhibition in primary and secondary education, and adopting it as a modern strategy in teaching biology for the fourth scientific grade

2- Preparing and organizing training courses for biology teachers during the service to train them to employ strategic steps of the touring exhibition in teaching positions

Fifth : Proposals : - To complete the aspects of this research and develop it, the researcher proposes the following :

1- Conducting a study similar to the current study to find out the effect of using the Gallery Walk strategy in divergent thinking and the academic achievement of middle school students in the subject (Biology)

2 - Conducting comparative studies of the Gallery Walk strategy with other strategies of active learning.

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