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THE EFFECTIVENESS OF (FAN -N – PICK) STRATEGY BY SIXTH GRADE PUPILS ACHIEVEMENT IN THE ADVANCED SCIENCE SUBJECT

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Abstract

The research aims to know the effectiveness of the (FAN -N - PICK strategy in the achievement of sixth grade pupils in the advanced science subject, and the research sample of (50) students from Al-Samaha Primary School for Boys in the first term of the academic year 2019/2020.

The research was arranged to find out the extent of the success of this strategy in improving the achievement of sixth grade pupils of primary school, section A and B. section (A) was represented by the experimental group, which numbered (25) students, and section (B) in the control group, which is (25) students. The results of the research came in support of the research results that confirm the use of this strategy in teaching science.

This indicates that its use has an effect on increasing and improving students' achievement. The results showed that there is a statistically significant difference at the level of significance (0.05). There is a difference in the average scores of the experimental group, which is studied according to the fan- like cards strategy, which is higher than the average score of the control group in the post application of the achievement test. The results of the percentage of success in science subject were 85% for the academic year 2019/2020.Based on the above mentioned, the researcher recommends the necessity of using the (FAN -N - PICK(strategy in teaching, and it has effectively contributed to improving students 'achievement.

Chapter 1

Research problem

Science is one of the important subjects in the educational system, as it greatly contributes to the progress and development of nations. The developed countries have been aware of this sensitive point for a long time, and have worked to improve and develop science curricula, and to search for methods that suit the nature of science education, by training teachers and using the best methods and strategies to highlight the science content in an interesting, enjoyable and effective manner at the same time. (Al-Balushi / 2009: 187).

Also, these methods and strategies pave the way for pupils to actively participate in the completion of the educational mission and draw its results through raising their interest and readiness and stimulating their talents. (Nasrallah / 2004: 79).

Despite the spread of teaching methods that emphasize the role of the student in the educational process, science education in our schools is still limited to listening and receiving, which makes the student's role passive. (Al-Hail / 2001: 195)

Among the strategies that the teacher can use in teaching science is the strategy of fan cards, whereby the student organizes what is written to make it easier for him to collect the parts of knowledge that he possesses, which can address some of the problems related to the level of achievement of students.

To find out the effectiveness of the propeller card strategy based on active cooperative learning in the achievement of sixth-grade pupils, the researcher defines the research problem with the following question:

(What is the effectiveness of the propeller card strategy in the achievement of sixth-graders in the advanced science subject?)

research importance:

Science education is witnessing a rapid development at the present time in order to keep pace with the rapid development process, and science education will not be feasible unless it relies on transforming the scientific material into realistic experiences that students engage in in the classroom so that the information is more and more entrenched in themselves. (Najdi et al. 2003: 24).

Perhaps among the reasons is the emergence of teaching methods and modern strategies in teaching subjects, especially sciences, and they had a great impact on the development of the educational process, especially with regard to employing those strategies in education. As it is characterized by its ability to make education meaningful, as it moves the student from the traditional concept of learning, which is the preservation of information, to the modern concept.

(Ferrel, O.8 Ferrel, L, 2002: 72-97).

And because the pupils differ in their physical, mental, personal and social characteristics, therefore the need arose to use the best teaching models and strategies, and for the success of the educational process to require the presence of a teacher who delivers the lesson, a learner or a student who receives the information and processes it himself, the content of the subject and the use of the best methods in teaching as it increases the pupils 'interest in the content Educational and increases their desire for education and helps improve their performance because it adds excitement and excitement to students (Al-Ezzi, 2012: 267).

And inventing new methods of teaching is an urgent matter necessary to facilitate the process of learning the science subject, which prompted those interested in the field of education to employ modern strategies that would make the learner active in his educational practice, and in line with the conditions of students, their scientific capabilities, and their mental and physical abilities. (Zayer 2016: 27)

As teaching according to modern strategies makes the teacher's role different from the role he plays in traditional education, which is limited to imparting knowledge and indoctrinating students, and employing his capabilities needs to be distinguished in his performance from within the classroom to create a comfortable environment for pupils to learn to acquire experiences that benefit them in their lives.

This has increased the focus on the use of active learning strategies, which include a group of activities that students follow in order to make better learning (Shaheen / 2010: 129).

The diversity in the strategies used in teaching increases the activity and integration of students into the classroom, makes them more amenable to learning and increases their interest in lessons, which contributes to the survival of the learning effect for a longer period. (El-Sherbiny and Effat / 2011: 630).

Among the modern strategies is the use of flash cards, which is considered one of the active learning strategies, which depend on making the classroom with an effective educational character rich in experiences and which paves the way for students to participate in assuming the responsibilities of working with their peers, cooperation and interaction with them, which leads to raising their level of achievement. (Awad and Magdy / 2010: 22).

According to the above, the importance of research is crystallized as follows:

1- The importance of using active learning strategies represented by the propeller card strategy.

2- This research may contribute to improving and raising the level of achievement of sixth grade pupils.

3- Keeping up with modern educational trends that call for building an independent personality for the learner, scientifically and socially.

Research goal:

The current research aims to find out the effectiveness of the propeller card strategy in the achievement of sixth grade pupils in the developed science subject.

Research hypothesis:

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

There is no statistically significant difference at a significance level (0.05) between the average scores of the experimental group students who study according to the propeller card strategy and the average scores of the control group students who study according to the usual method.

Search limits:

The search is limited to:

1- Sixth grade pupils of primary school in Al Samaha Primary School for Boys, affiliated to Baghdad Governorate Education / Rusafa Al-Aula.

2- The first semester of the academic year 2019/2020.

3- Academic subject

The first unit: characteristics of living things. First semester: Natural reproduction in plants. Lesson one: Seed propagation. Lesson two: vegetative propagation. Chapter Two: Artificial Reproduction in Plants. Lesson 1: Reproduction by pens and vaccinations. Lesson two: Reproduction by cuttings.
The second unit: the human body and health. Chapter Three: Organs in the Human Body. Lesson one: the nervous system and its health. Lesson two: the skeletal system and its health. Lesson three: the muscular system and its health.
Chapter Four: Sense in Man. Lesson one: the sense organs. Lesson two: Skin structure and functions.
The third unit: matter and its interactions. Chapter Five: Building the Atom. Lesson one: the atom. Lesson two: Elements and compounds. Chapter Six: Chemical Reactions. Lesson one: the concept of chemical reaction. Lesson two: expressing a chemical reaction.

Defining terms:

First: Effectiveness: defined by each of:

1- Zaitoun (2001): that it matches the outputs of the system with its objectives. (Zaitoun / 2007: 17).

2- Magdy (2009): As the ability to influence and reach goals and achieve the desired results in the best possible way. (Magdy / 2009: 745)

Second: Strategy: defined by each of:

1- Attia (2013): that it is a set of practices that the teacher adopts to reach the outputs that reflect the goals he set, represented by the activities, methods, means and appropriate evaluation methods. (Attia, 2013: 262).

2- (2000, Schunk): as plans directed at performing tasks in a successful manner or structured production to preserve the level of dispersion between the student's current knowledge and the goals he wishes to achieve.

(Schunl, 2000, 144)

Third: Fan-N-pick: Each of the following knew them:

1- Ambu Saidi and Hoda (2016): A strategy of active learning strategies, aimed at enhancing the spirit of cooperation and harmony between pupils, breaking the usual routine, and making the learning process interesting and not boring, as the teacher prepares a group of questions in cards presented in a fan-shaped summer format for pupils to answer them . (Embu Saidi and Hoda, 2016: 466).

2- Al-Shammari (2011): It is one of the active learning strategies, based on assessing the level of the learner's understanding of the lesson in light of a group of questions on cards that are displayed in a fan shape.

(Al-Shammari, 2011: 83).

Fourth: Achievement: It was known by each of:

1- Abu Jadu (2009): The student's learning outcome within a certain time, and it is measured by the student's degree that he achieves in the achievement test, as the knowledge reached by the student is translated into grades.

(Abu Jadu, 2008: 425).

2- (Riv kin, 2010): What the student can actually do, after he has completed a program or a specific curriculum. (Riv kin, 2010: 34)

Chapter II

The theoretical framework and previous studies

First: The theoretical framework

Chopper Card Strategy (Fan-N-pick strategy) :

Fan -N - Pick strategy is considered one of the active learning strategies and active learning derives its philosophy from constructivism theory, which believes that the learner builds his knowledge by linking new knowledge with previous concepts stored in his cognitive structures and introducing changes to it to generate new knowledge.

(Ambu Saidi and Hoda, 2016: 406).

And its reliance on the learner as the focus of the educational process, and the organization of the education process so that it makes the learner able to build his own understanding, and this comes through his passing through educational situations that stimulate thinking and motivate him to make an effort through the completion of an activity that links new information with previous information and reaching a solution to the problem presented to him, so that It makes his learning meaningful. (Al-Afoun and Hussein / 2012: 75).

Active learning provides feedback to the learners, so that it helps him to understand and evaluate his knowledge. The learner needs to reflect on what he learned and identify what is mysterious about him, which leads to a focus on learning in addition to providing effort and sufficient time for learning. (Bedir / 2008: 27)

The use of active learning calls for a change in the learning environment and the preparation of the climate that helps this renewal, in which the planning and implementation of the learning process takes place, and the learners develop innovation and creativity.

(Azab / 2010: 6).

The interest in active learning and its educational strategies that depend on making the classroom have an effective educational character rich in experts, which paves the way for the learner to participate and take responsibility towards his peers, cooperation and interaction with them (Awad and Majdi / 2010: 22)

Abu Ghraib (2007) indicates that active learning is one of the modern educational directives calling for activating the role of the positive learner and making it the basis and focus of the learning process (Abu Ghraib / 2007: 2).

Shehab (2009) indicates that active learning tends to be a natural way of learning, and learners of all ages use it in carrying out their life tasks

(Shehab / 2009: 6).

And the adoption of active learning strategies in training allows learners to participate in activities that allow for positive interaction.

(HE and Abdullah / 2007: 33).

Perhaps the reason for adopting active learning strategies is due to their observance of the rights of individuals in education, considering the school their gateway to tomorrow and the opportunities that it brings to them for future life. (Training Complex I / 2012: 6).

They are learning strategies and work on integrating the learner in carrying out various activities, dialogue, participation and interaction in the classroom in organized groups, and it is required that there be a relationship between the ideas and knowledge in the learner's cognitive structure and new ideas and knowledge. (Abu Al-Hajj and Hassan / 2017: 47).

Active learning includes many strategies, and the reason is due to its dependence on the activity of the learner and the effort he exerts during learning. The teacher must choose a strategy that is compatible with the content of the lesson and according to the nature and characteristics of the learners (Obaidan and Suhail / 2008: 28).

Among those strategies is (the fan cards strategy), which aims to enhance the spirit of cooperation and harmony among students and make the learning process interesting and meaningful. (Embu Saidi & Hoda, 2016: 466).

Characteristics of the application of Fan -N - Pick strategy:

1- It helps the student to use cognitive and mental skills.

2- The student's endeavor to assume greater responsibility to achieve learning.

3- The competition for supremacy at the individual level.

4- Integration and participation of students (with a lower level of achievement with students with a higher level of achievement) in the studies.

5- Encourages mutual teaching among students.

6- Greater opportunities for individual thinking.

7- Develop the student's self-confidence.

Despite the many advantages this strategy achieves, there are obstacles that may hinder its implementation, namely:

1- Students 'fear of participating.

2- Fear of criticizing others.

3- The lack of time allocated to the lesson.

4- The increase in the number of students in the classroom. (Abu Hajj and Hassan, 156, 2015).

Steps chopper cards.

1- The teacher divides students into small, heterogeneous groups (3, 5) students.

2- He distributes to the groups cards designed by him and containing different questions about the current or previous lesson topic, as follows:

- The first student displays the cards in a fan shape.

- The second student draws out a card and reads the question in it aloud.

- The third student thinks about the answer, then answers the question.

- The fourth student evaluates the answer, and if his colleague's answer is correct, he will be praised and encouraged, and if it is wrong or incomplete, then he will provide the correct answer.

3- The task is repeated among the group students in other cards.

(Sheikhoun, 2012, 7)

Second / Previous Studies:

After reviewing the studies, the researcher found three studies that dealt with (the flashcard strategy). Below is a table showing the studies that dealt with the cognitive cards strategy.

studying	The goal	the place	The sample	Tools	Statistical means	Results
Abkeh, 2018	Knowing the effect of Fan - N - Pick strategy on the achievement of the second average students in Arabic grammar	Iraq. Babylon	60 students	Post-achievement test	T-test, chi-square, paragraph difficulty factor, paragraph discrimination coefficient, effectiveness of false substitutions, Pearson correlation coefficient, Spearman-Brown equation	The experimental group excelled in the achievement test over the control group
Akideh, 2018	Knowing the effect of using Fan -N - Pick on developing some mathematical thinking skills and academic achievement among students	Palestine. Gaza	72 students	Achievement test and test of mathematical thinking skills	SPSS statistical packages	The experimental group surpassed the test of mathematical thinking skills and the achievement test over the control group

	of the fourth grade in the Gaza Strip					
Shenjar, 2019	Knowing the effect of the strategies of the boards and fan cards on the achievement of social subjects among the fifth grade students	Iraq. Babylon	92 schoolgirls	Achievement test	Unilateral analysis of variance, Scheffet's test, coefficient of discrimination equation, the equation for the effectiveness of false alternatives, Alpha-Cronbach equation	The two groups outperformed the control group in the achievement test

After reviewing the previous studies that were explained in the previous table, I found that there are aspects of agreement and difference between them and the current research in:

1- Research methodology:

The previous studies were consistent with the current research in the research methodology that was adopted in conducting it, as all of them adopted the experimental research method.

2- Aim of the study:

The study (Abkeh, 2012) aimed to know the impact of the propeller card strategy on achievement. Likewise, the study (Shenjar, 2012) aimed to find out the effect of the two strategies of propeller boards and cards on achievement. As for the study (Akdaih, 2012), it aimed to know the impact of the propeller card strategy in Developing some mathematical thinking skills and academic achievement.

As for the current research, it aims to know the impact of the propeller card strategy on academic achievement, and this research agrees with those studies in the field of achievement.

3- Sample size and stage of study:

The size of the sample in the study (Abkeh, 2012) was (60) students of the second intermediate stage, and in the study of (Shangar, 2012), (92) female students from the fifth grade of primary school, and the study of (Akdaih, 2012), (72) students of the class The fourth primary.

As for the current research, the sample size reached (60) students of the sixth grade.

4- Subject:

Fan -N - Pick strategy was applied in the study (Shingar, 2012) to measure its impact on the academic achievement of the subject of social studies, the

study (Abkeh, 2012) to measure its impact on the academic achievement of the subject of Arabic grammar, and the study (Akdaih, 2017) on the academic achievement of mathematics.

As for the current research, it was applied to measure its impact on achievement in the developed science subject.

5- Tools

The study of (Abkeh, 2012) and (Shangar, 2013) agreed to use a post-achievement test. As for (Akdaih, 2012), a post-achievement test and a test of mathematical thinking skills were used. As for the current research, the research tool was represented by the post-achievement test, and thus the research agrees with Previous Research Tool.

6- statistical means:

Previous studies relied on the use of different statistical methods to analyze their data, such as the T-test, the chi-square, the paragraph difficulty factor, the paragraph distinction coefficient, the effectiveness of the alternatives, the Pearson correlation coefficient, the Spearman-Brown equation, the single-variance analysis, the Shaivism selection, and the alpha equation. Cronbach, and SPSS statistical packages.

In the current research, statistical methods were used (Cooper's equation, paragraph difficulty coefficient, discrimination coefficient, the effectiveness of alternatives, the second test, the Keoder equation. Richardson. 20 Pearson correlation coefficient, Alpha-Cronbach equation) and the use of the statistical packages program (SPSS) in analyzing the data. And come to the results.

7- Results of studies:

All previous studies concluded the superiority of the experimental group over the control group.

Beneficial aspects of previous studies.

1- Determine the curriculum and type of design.

2- Benefiting from some equivalence procedures for the two research groups.

3- See how to prepare tests and standards.

4- Determine the appropriate statistical means for the study hypotheses.

5- Scientific and logical interpretation of the results of the current study.

6- To seek the necessary Arab and foreign resources.

The most important thing that distinguishes the current study from previous studies

1- Preparing a test on academic achievement.

2- Using the propeller card strategy in teaching science for the sixth grade, which was employed for the first time in teaching this subject (as far as the researcher knows).

Chapter III

Search procedures

1- Experimental Design:

The research includes one independent variable, which is the propeller card strategy and one dependent variable, which is achievement. The experimental design with partial control was chosen for the two groups (experimental and control) in equal numbers. The post-test is controlled by the other in the achievement as shown in the chart (1)

The group	Parity	Independent variable	Dependent variable
Experimental	Average achievement scores in the science course developed for the previous year	Chopper cards strategy	Attainment
Control	Intelligence	The usual way	
	Previous test information		

2- Research community and its sample:

Al-Samaha Primary Boys School for Baghdad Governorate, Al-Rusafa Al-Awal, was chosen, and two divisions (A and B) were chosen randomly, as Division (A) represents the experimental group that is taught according to Fan -N - Pick strategy, and Division (B) represents the control group that is taught according to the method. The usual, after statistically excluding students who failed, the number of each class became (25) pupils, as shown in Table (1).

Table (1)

Distribution of the research sample to the experimental and control groups

The group	Division	Number of pupils before exclusion	Excluded pupils	Number of pupils after exclusion
Experimental	A	27	2	25
Control	B	26	1	25
Total		53	3	50

3- Equivalence of two research groups:

The two groups were equivalent in some variables, including:

A- Previous achievement rate in the science subject:

The grades of the students for the two research groups for the fifth grade for the fifth grade of the primary school year (2018-2019) were obtained from the school administration, and the arithmetic mean and analysis of variance of the scores of each group were extracted, using the (t.test) test, which showed through the results that it is not a statistical function, and thus the two groups The two are equivalent in this variable, as shown in Table (2).

Table (2)

Shows the arithmetic mean, variance, and the calculated and tabular T-value for the two research groups in the achievement variable for the previous year

The group	The number of the sample	Arithmetic average	variance	T-value		Statistical significance
				Calculated	Tabular	
Experimental	25	75.14	205.17	85.0	2.00	Not a function
Control	25	72.89	396.14			

It was found from Table (2) that the calculated T value is (0.85) less than the tabular value (2.00) at the level of significance (0.05) and the degree of freedom (48), which indicates the parity of the two groups in this variable

Table (3)

The arithmetic mean, standard deviation, and the calculated and tabular T-value of the variable of the chronological age of the two research groups' marks

The group	the number	Arithmetic average	standard deviation	Degree of freedom	T-value		Statistical significance
					Calculated	Tabular	
Experimental	25	166.07	3.74	85	0.629	2.000	Not a function
Control	25	165.43	4.05				

B- Intelligence test

The (Otis - Lennon) test, which is standardized on the Iraqi environment by (Qurayshi, 1990), was chosen to measure intelligence, which consists of (50) miscellaneous items, all of which were formulated in the form of a multiple test attached (4-A), and it was applied on Wednesday (9 / 10/2019) for the students of the two research groups, and after correcting the answers according to the correction key Appendix (4-b) assigns (one grade) to the correct answer and (zero) to the unsuccessful answer.

The total score of the test was (50) marks, and the grades were arranged appendix (7-a) and appendix (7-b). After treating the values statistically, the mean scores of the experimental group were (22.10) and the control group (22.87), and by applying the t-test For two independent samples, it became clear that there is no statistically significant difference at the level of significance (0.05) and the degree of freedom (58), as the calculated T value was (0.528) which is less than the tabular value (2), and this indicates that

the two groups are equal in the variable of intelligence, and a table (4) Explains it.

C- Examining previous information:

A test for previous information was prepared consisting of (10) items of a multiple-choice type with four alternatives, and the results showed that there was no statistically significant difference between the members of the two research groups in this variable, as in Table (4).

Table (4)

It shows the arithmetic mean, analysis of variance, and T-value for the two research groups In the previous information variable

The group	The number of the sample	Arithmetic average	variance	T-value		Statistical significance
				Calculated	Tabular	
Experimental	25	8.77	2.97	0.62	2.00	Not a function
Control	25	8.95	83.6			

It was found from Table (4) that the T-value is (0.62) less than the table value at the level of significance (0.05) and the degree of freedom (48), which indicates the parity of the two groups in the previous information variable.

4- Research requirements:

A- Defining the scientific material:

The research was limited to the second unit, the human body and health / third chapter / Organs in the human body from the developed science book for the sixth grade of elementary school / 2nd Edition, 2018

B- Formulating behavioral objectives and determining their levels:

After reviewing the study content of the science book for the second unit, the third semester, the study 1/2/3, (60) behavioral presentation, according to the first three cognitive plum levels (remembering, comprehension, and application).

C- Preparing daily teaching plans:

(6) daily instructional plans were prepared for the experimental group and (6) for the control group. They were organized according to the strategy of fan -n - pick for the experimental and control group according to the traditional method. The researcher relied on teaching the experimental group on using the propeller card strategy (Appendix 2)

5- Search tools:

In the current research, the researcher used the following tools:

First: Fan -n - Pick

It is one of the active learning strategies that aims to enhance the spirit of cooperation and harmony among students and break the routine. And it makes the learning process interesting and not boring, as the teacher prepares a set of questions in cards presented in the shape of a Chinese fan for students to answer them. The researcher coordinated the pupils in groups and distributed the cards to them, as each card contained a question, and one student presented the cards and the other student read the question and another student answered the question, then evaluated by the other student in the same group, and the questions were written on the blackboard and discussed with Pupils in one group, then with the other groups in the class and record information and experiences on the subject of the lesson.

This is done in coordination between the researcher and the science teacher at the school.

Second: Achievement Test:

The researcher built the achievement test in light of the content and its behavioral goals, and the focus in designing the test was on the rules of objective tests based on multiple choice, as each question consists of an introduction and four options, one of which is the correct answer, and the researcher has followed the following steps in building the test:

1. Determine the purpose of the selection.

2. Building the test and testing it out

3. Building the test in its final form.

A- Building the achievement test:

An achievement test consisting of (20) items of a multiple-choice type was built, an appendix (1) with four alternatives, and a test map was prepared as shown in Table (5).

Content weight	Chapter Three, Unit 2	**The number of servings**	Class time in minutes	Levels of goals			Total 100%
				Remembering 57.20%	Comprehension 27.25%	Application 9%	
35%	Lesson/1	4	120	25	10	5	40
30%	Lesson/2	4	120	15	5	5	25
35%	Lesson/3	4	120	20	10	5	35
Total		12	380	60	25	15	100

B- Virtual honesty:

The apparent validity was measured, which indicates the suitability of the test for the students and the clarity of its instructions, as well as the validity of the content. The test covers all parts of the material that the students studied, and it was achieved through the test map.

Conducting the experiment, including:

Conducting the experiment included a set of steps that are presented as follows:

▪ The first step: Visiting the school and coordinating with the subject teacher:

Where the researcher made several visits in coordination with the school administration, the student counselor and the science teacher at the school, in order to determine the date of the beginning of the experiment and to complete the regular procedures to implement them on the experimental and control groups, and it was agreed that Wednesday 10/17/2019 will be the date for the beginning of the application of the experiment.

▪ The second step: / Choose classes of the experiment:

The third semester / the second unit, the human body and health, was chosen randomly from among the classes of the science subject developed for the sixth grade of elementary school, where it was agreed with the science teacher that students of Division (A) represent the experimental group, and students of Division (B) the control group.

▪ Exploratory experience of the test:

The achievement test was tested on an exploratory sample consisting of 30 thirty students from the sixth grade of primary school in Anas Bin Malik School in the city of Baghdad, which is affiliated with the Education of Baghdad Governorate for the survey sample. Study of the second unit / the human body and health / third semester / human body organs / first lesson / lesson The second / third lesson, and the goal of this application was to verify the following:

1- Knowing how clear the test instructions are.

2- Knowing the clarity of the test vocabulary.

3- Determine the test time.

4- Calculating the ease and difficulty factor for the test.

5- Calculation of test reliability.

Where the test is presented to experts, referees, and specialists in methods of teaching science, and the test is considered valid

Table No. (6)

Representation of questions for cognitive levels according to Bloom's Taxonomy

N	Cognitive level	Questions	Total	The percentage
1	Remembering	1-2-8-12-16-17	6	30%
2	Understanding	3-4-5-6-7-9-13-19	8	40%
3	Application	10-11-14-15-18-20	6	30%
Total			20	100%

6- statistical means:

Appropriate statistical methods were followed by using the statistical packages program (Spss).

7- Test stability calculation:

The researcher used Cronbach's Alpha, after applying it to the scores of the exploratory sample, and the test reliability coefficient was (0.78), which is a sufficient value to indicate the stability of the test.

The fourth chapter

View and interpret results

First: Presentation of results: For the purpose of verifying the research hypothesis:

(There is no statistically significant difference at a level of significance (0.05) between the average scores of the experimental group students, which were studied according to the strategies of the propeller cards, and the average scores of the students of the control group that were studied by the usual method of achievement), and the (t.test) test was used for two samples. Two independent units of equal number to know the significance of the difference between the mean scores of the experimental and control groups, as in Table (7)

Table (7)

It shows the arithmetic mean and analysis of variance for the two research groups in the achievement test

The group	The number of the sample	Arithmetic average	variance	T-value		Statistical significance
				Calculated	Tabular	
Experimental	25	31.75	9.82	15.87	2.00	Statistical function
Control	25	27.17	6.14			

It was found from Table (7) that the value of T (15.87) is greater than Table (2) and thus rejects the null hypothesis, and the experimental group that was studied according to the propeller card strategy surpasses the control group that was studied according to the usual method.

Second: Interpretation of the results:

The superiority of the experimental group pupils over the control group pupils is due to the use of the fan card strategy as a result of the different activities during learning, and there is self-reliance and individual and collective responsibility among the group members in learning information, as well as the use of discussion between members of the group (experimental) and exchange of ideas, in addition to To enhance material and moral, and it has created the educational environment and increased the pupils 'self-confidence, and that the strategy used has helped improve students' achievement and assimilate information better than control group students who studied according to the traditional method.

Third: Conclusions:

In light of the above, the researcher can interpret the results of the research, which revealed the existence of statistically significant differences in the achievement of the experimental and control groups in favor of the experimental group, in the following points:

1- Using Chopper Cards:

The researcher used a set of fan cards and displayed them in the form of a Chinese fan, and sought to be integrated in terms of user performance and re-discuss the material to help students remember information better, as this greatly contributed to the students 'acceptance of that strategy and their interaction with it greatly.

2- Teaching environment:

The school building in which the experiment was applied is considered one of the modern government buildings, which contain a video that helps present the topic beautifully for applying this type of lessons, in terms of:

1- Its proximity to the classes of the experiment, as it shortens the time allocated to the class.

2- Containing school furniture and good adaptation, and distributing the student seats in groups, which contributed to conducting the experiment in a cooperative and comfortable atmosphere.

3- It allows all pupils to benefit as much from the presented material as possible, which helps to a large extent to eliminate individual differences between students.

3- Material parameter:

The researcher used the helicopter cards as the researcher tried to practice new roles such as directing and counseling, organizing the learning process and facilitating it instead of just indoctrination. All this contributed to providing a psychological environment for students in coordination with the science teacher.

Fourth: Recommendations:

In light of the results that have been reached, and their discussion and interpretation, the following recommendations can be reached:

1- Working on employing the propeller card strategy in teaching the developed science subject for the sixth grade of primary school.

2- This strategy is considered one of the modern strategies appropriate to the current curriculum of the developed science subject.

3- Urging teachers to search for modern strategies in teaching, and part of their evaluation degree is allocated on the basis of that.

Fifth: Proposals:

The researcher suggested the following:

1- Conducting a study on employing the helicopter strategy in other educational materials and classes for boys and girls.

2- Conducting studies that measure higher levels in Bloom's classification for educational purposes

(Analysis - interpretation - evaluation).

3- Conducting studies to evaluate the strategy in terms of performance and suspense and improving the level of achievement.

4- Conducting comparative studies between employing the propeller card strategy and other strategies in teaching science, in the presence or absence of the subject teacher.

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Appendices

Appendix (1)

Items of achievement test

1- The human peripheral nervous system consists of:

A- a network of nerves, B- a group of organs, C- the spinal cord, D- the brain

2- The part responsible for maintaining the balance of the body is:

A - the brain, B - the cerebellum, C - the medulla oblongata, D - the skull

3- The importance of the skull to the brain is:

A. Providing him with blood B- providing air C- sending nervous instructions D- keeping him from shocks

4- The skeletal system consists of a number of bones that differ in shapes and sizes from the long ones, such as:

A- the finger bones, B- the chest, C- the limb bones, d- the skull bones

5- Disc shaped bone structures that form the spine are:

A - vertebrae, B - cartilages, C - tendons, D - ribs

6- Most of the joints in the human body are mobile in different forms, including cylindrical ones:

A- the shoulder joint, B- the forearm joint, C- the foot joint, D- the shoulder joint

7- The bone to which the ribs connect from the front is:

A- The ulna bone, B- The shin bone C- The forearm bone D- The sternum

8- The muscles that attach to the spine are:

A- wide, B- short, C- long, D- circular
9- The human heart consists of many muscles:
A- the will, B- the involuntary, C- constant, D- the first two types together.
10- The organ that contains the largest number of bones in the body is:

A - the foot, B - the skull, C - the hand, D - tenderness.

11- There is a layer in the eye that senses light and distinguishes colors called:

A- the retina, B- the cornea, C- the iris, the pupil.

12- The middle ear contains bones whose number are:

A- 5 bones, B- 3 bones, C- 4 bones, D6 bones.

13- The nose is an organ for human smelling, and the smelling process goes through stages that are:

A- two phases, B- 3 phases, C- 4 phases, 5-5 phases

14- The bitterness buds that distinguish the bitter taste are located in:

A - the front of the tongue, B - on either side of the front tongue, C - the back section of the tongue, D - on either side of the back tongue.

15 - The epidermis has small holes called:

A - villi, B - pores, C - sebaceous glands, D - sweat glands.

16- Among the most important functions of the skin:

A- Providing support and attribution B- stimulating blood circulation

C- regulating body temperature D- enhancing body immunity.

17- The weight of the skin in an adult human body is about:

A- 4 kg, B- 5 kg, C- 3 kg, D- 6 kg.

18- The part of the ear that vibrates to transmit sound to the bones of the middle ear is:

A - the tympanum, B - the pinna, C - the auditory nerve, D - the external auditory canal.

19- The shape of the image that forms on the retina is:

A- enlarged, B- moderate, C- upside down, D- the same body size.

20 - The largest parts of the brain are:

A - the brain, B - the cerebellum, C - the medulla oblongata, D - the spinal cord.

Appendix (2)

A teaching plan for the experimental group according to the strategy of the helicopter cards.

Article / Science Lesson 2 / The nervous system and its health

Grade / sixth primary Chapter Three / Organs in the human body

Topic / The human body and health (the nervous system)

Time: 45 minutes

Special Goal

he students acquire basic and functional information about some of the human body systems, including (the first lesson / the nervous system - the brain, the brain, the nerves, the spinal cord, the nerve instructions).

Behavioral purposes

Knowledge Domain /

1- It shows the structures of the nervous system.

2- Learn about the function of the nervous system.

3- It investigates the mechanism of the nervous system.

4- Apply healthy habits and practices that contribute to maintaining the health and integrity of the nervous system. Then the educational productions are approved by the pupils, and the answers to the questions raised by the students.

Skilled Domain /

1. Training in the skills of science operations.

2. (experimentation, observation, conclusion, expectation, comparison).

3. Training on safety precautions such as using electricity with wet hands.

Affective domain / modeling with artificial mud.
Development of trends and some values, including:
- Acquire social interaction skills.
- The students cooperated between them in discussing the topic.
- Feeling fun during the lesson.

Teaching aids: clay, an anthropomorphic brain model, a switch nut, wires, a battery, a light bulb, and a chopper for the lesson.

Lesson progress:

First / Preparation (5 minutes)

In the previous lesson, we studied a general idea about some of the human body's systems, and got acquainted with their components, functions, and different methods to maintain their safety, and from these devices we studied the nervous system. Where the child needs to drive the bike to a nervous system, and the teacher asks the pupils to look at the unit and chapter pictures, then writes the addresses on the blackboard, and asks the pupils to browse the unit and chapter pages that explain the nervous system, then read the general idea of the class and ask the pupils to link them with names Lessons and titles, and show them that the titles contained in the lesson are derived from the general idea. Students are required to prepare a learning schedule and hang in the classroom before presenting the lesson content, and make use of the learning schedule in all class lessons.

Second / Lesson presentation (40 minutes)

1- Distribution of pupils (5 minutes)

The pupils are distributed into groups, each group consisting of (4-6) pupils and it is as follows (very good / good / medium / weak) and the groups are numbered and then distributed to each group four cards, each card contains one or more questions (the cards are numbered and organized in a way Tray fan).

The researcher asks that one of the students from group (1) get up and turn on the light bulb in the classroom. Then she asks the pupils to summarize the steps that the pupil took to perform this process.

2- Implementation of strategy steps: (10 minutes).

The students are distributed as follows:

A- The student (1): holds the card in the form of a Chinese fan. And he should also write the correct answer. The question is as follows and put it to the students:

Q / What made me go directly to the main switch for operation?

B- The student (2): He pulls the card and asks a question to the next student.

Q / What helped me turn on the lamp?

C- Student (3): answers the question - a possible answer (memory / brain).

D- The student (4): He evaluates if it is correct, praises the student (3) and encourages. If the answer is wrong, it paves the way for the correct answer and helps him to reach the answer. He shows pictures of the brain and asks what do you notice in the picture?

E- The rest of the group's pupils - pupil (5), (6) participate and give a possible answer:

Pupil (5). Picture of a human head, a human brain.

Pupil (6) the human brain.

Pupil (5) (6) ask all members of the group: What is the brain.

Pupil (2), (3), (4), they give a possible answer - it is an organ in the human body - which is part of the nervous system.

Pupil (1) writes the correct answer on the board after circulating the answer among the group members. Note the change of pupil (1) and the rotation between members of the group.

3- Discussion of students 'answers to the cards' questions: (20 minutes).

A scientific film is shown about the human brain and how to do its job. The issue demands that they discuss among themselves about what they saw in this film, and each group explains that in its own way.

Then the researcher shows a model of the brain in front of the pupils and makes sure that all the pupils were able to view it well. Then ask each group to provide a description of the shape of the brain, feel for its outer surface, and record their observations in their notebooks.

The researcher performs a simple experiment:

1- An electrical circuit consists of (a lamp, electrical wires, a battery, a switch, and blank cards).

2- Check the connection with the help of the pupils (one pupil in each group).

3- The electrical circuit is closed by the electrical switch.

4- Turn on the light bulb.

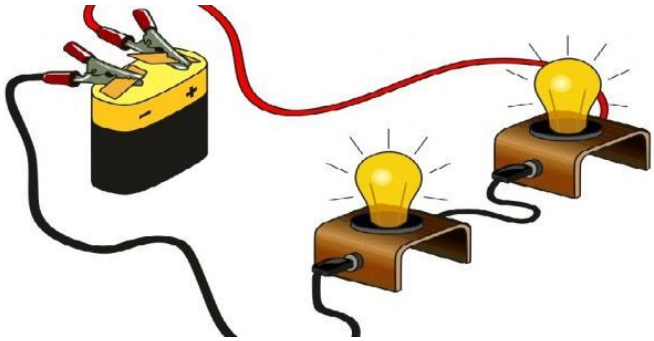
The groups ask: What happened to the lamp? (Card # 1).

Each group writes the answer on the paper. As per the previous sequence in the previous step.

The group members write the answer in the assigned journal.

After making sure of the group members that the answer is correct. The researcher asks: (Card No. (2) and so on ...

What led to the electrical current flowing from the battery to the light bulb?



The answer is according to the previous sequence.

Pupil (1) takes the card, Pupil (2) draws the card, and pupil (3) asks.

Pupil (3): answer a possible answer (electrical wiring).

Pupil (4): Pupil (3) Excellent evaluates the correct answer and asks the rest of the group:

What would you expect if the light bulb did not connect to the battery via wires?

Pupil (5) / (6): They think and answer a possible answer - does the lamp not glow?

Student (4): They write the answer in the notebook.

Student (5) / (6) compares the operation of the simple electrical circuit with that of the nervous system. And they put a card written on the human body near a light bulb. And the other card they write the brain near the battery. And a third card written on it nerves near the wires and asked the group pupils.

Student (5): How can the brain send instructions to the human body?

Student (6): a solution that enables the brain to send instructions to more than one organ at the same time - possible answers.

Pupil (1) Yes. Nerves.

Pupil (2) Yes. Because nerves connect the brain to different body systems.

Student (3), (4) Yes. By nerves they act as the electrical wires in an electrical circuit. Thus, the topic will be completed for all class.

Students use the Learning Table after reviewing what they have learned and then record the answers in the What have learned field of the Learning Table (nervous system).

After making sure that the students write the answers in the science table.

Calendar: (5 minutes).

Q / What is the nervous system and its importance?

Then the following questions are asked:

Q / Where is the brain located?

Q / What is the role of the nervous system in the human body?

Q / Where are the nerves spread in the body?

Q / What is the importance of nerves?

The researcher accepts correct answers and addresses wrong answers during the course of the lesson.

Homework: the skeletal system.