

The Effectiveness Of The Strategy (Hidden Arrangement) In Developing Creative Motivation Among Fourth Year Students Of Science In Physics

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Summary

The research aims to identify the effectiveness of the (hidden arrangement) strategy in developing the creative motivation of fourth-grade students in physics. The research community is the fourth-scientific students. The sample of the research consisted of (30) female students of the experimental group, which was studied by the (hidden arrangement) strategy. (30) female students of the control group who studied in the traditional way. Given the nature of the research, the researcher adopted the experimental method. To achieve the objectives of the research, the researcher prepared a tool for creative motivation, which is a scale consisting of (37) items. The validity and reliability of the scale were verified, and the statistical analysis package (SPSS) was adopted to extract the results, as the results showed:

1) There are statistically significant differences at the level (0.05) in the variable of developing creative motivation in favor of the experimental group. There are significant statistically significant differences at the level (0.05) in the mean differences between the scores of the pre and post tests of the creative motivation scale among the experimental group students who study physics according to the hidden arrangement strategy. There are no known statistically significant differences at the level (0.05) in the mean differences between the pre and post test scores of the creative motivation scale among the experimental group students who study physics in the traditional way.

The research recommended the following

1. Conducting in-service training courses for male and female physics teachers to train them on the use of modern strategies, including the hidden arrangement strategy.
2. The preparation of the creative motivation scale for the fourth scientific grade in the physics book helps in providing physics teachers for the preparatory stage with this scale from my point of view.
3. Inclusion of modern strategies, including the hidden arrangement strategy, in the vocabulary of methods of teaching physics in the faculties of education and basic education in order to improve and develop the level of preparation of the physics teacher.
4. Directing teachers of science subjects in general and physics in particular to diversify the use of various strategies in teaching such as the hidden arrangement strategy because of its role in achieving the objectives of teaching scientific subjects to raise the level of achievement.
5. The need for the Ministry of Education to issue a guide for physics teachers that includes modern strategies with an indication of the various steps and mechanism that it undertakes to keep pace with the development taking place in the educational sciences.

Chapter One

(Introducing the Research)

First: The research problem: From the researchers' modest experience in teaching physics, I noticed that there is a weakness in the extent of the students' interest and motivation

to learn the subject, which is reflected in their motivation to generate and multiply ideas and present them freely during the physics lesson. This causes a weakness in their creative motivation, which prompted the researcher to discuss a number of teachers with Experience and specialized supervisors to ensure that there

is a weakness in the motivation of students and their followers, and about the reasons that led to this weakness in physics. The answers were varied, but most of them emphasized the lack of creative motivation to learn physics after they obtained a letter facilitating a task from the Directorate of Education Al-Rifai. The researcher presented to the teachers and teachers in physics subject an open questionnaire attached (3) about the teaching methods they use, and did they give importance to creative motivation during teaching physics and what are the reasons that led to the weak motivation of creative students in physics and most of the answers were to use traditional teaching methods that focus on giving scientific material. As it is not a type, in which the role of the student is negative, as he receives information and has no role in it. Class discussion and he does not present the ideas that revolve in his mind freely and he is not able to diversify these ideas because the time of the lesson does not fit with the classes of the curriculum during the school year, as well as the environmental conditions that surround the students negatively affected the motivation of the students.

Since the traditional methods did not pay attention to female students and did not develop and did not develop creativity as it should, she, as a researcher, had to decide to use the hidden arrangement strategy in teaching physics for the fourth scientific students, because it is based on arousing the students' motivation and stimulating their thinking to predict the outcome of the phenomenon or the proposed problem that occurs in a way. Individually, the students were given the opportunity to work in groups to solve the ambiguity, and where the presence of contradiction and cognitive dissonance creates a psychological state that motivates students to reduce the dissonance and achieve cognitive balance by modifying false predictions.

Teaching creativity requires good and effective teaching qualities, such as strong motivation, strong expectations, ability to communicate, ability to listen carefully and inspire, ability to anticipate and predict. Creative teachers need a broad and wide experience in their specializations and exciting methods and their awareness when students need encouragement, especially when their self-esteem is low, and teachers must ask openly and in appropriate ways open and closed questions at the same

time because they provide greater opportunities for creative activity." (Magdy, 2009: 139).

From the above survey, the researcher found that a large sample of physics teachers have a wrong perception about female students' performance in physics, in addition to their lack of knowledge of modern strategies that are compatible with trends in physics. Therefore, the researcher decided to try it and it might help in improving the performance of the students.

The research problem is determined by the following question: The effectiveness of the (hidden arrangement) strategy in developing the creative motivation of fourth-grade female students in physics.

Second: The importance of the research: Since education is a social process, the development of societies depends on the level of their interest in educators, which is the backbone of life. Education differs from one society to another, in order for education to reach its goals clearly in society, there must be a fair approach to all developments Social, because the curriculum is the main focus of the educational process (The Resource, 2008, 21)

The curriculum covers all experiences and activities offered to students inside and outside of school and aims to provide a comprehensive development that enables them to change their thinking and behavior and produce solutions to the problems they face. (Jabr and Zia, 2015: 31) One of these approaches is the physics curriculum, which is one of the most important natural sciences curriculum, where the interpretation of natural and unnatural events can be explored based on experience, and this phenomenon is supported by mathematical laws and the phenomenon may be described, explained and benefited from in our lives. (Jarwan, 2007: 24)

The information given to learners should be closely related to their daily life so that all their efforts are not lost in the educational process. (Al-Khalili et al., 1996: 55).

In order to convey the educational content to the learners well, it is necessary to follow appropriate teaching methods, by crystallizing the teaching process in organized steps in order to better achieve the goals of teaching and continuing education. (Boudi and Muhammad, 2012: 19).

Those who organize learning strategies in the educational field assert that raising the

individual as a useful member requires moving away from purely individual education, which promotes the spirit of selfishness and unfair competition that leads to hatred and malice among learners groups. Teams or groups have an active role in transmitting information between individuals and groups.(Abu Harb et al., 2004, p. 79).

Modern teaching strategies and methods have emerged that transfer the effectiveness of the educational process from the teacher to the learner, and in this case it is considered the center of organized activities aimed at achieving the goals of the educational process (Melhem, 425: 2006).

The researcher believes in the necessity of using modern methods and strategies in teaching physics, and therefore she chose one of the cooperative learning strategies that make the learner active and effective, the hidden arrangement strategy that responds to the modern trend of placing the learner at the center of the educational process is the one that deals with cooperative effectiveness and positive learner relations in educational situations Where teaching is based in a learning environment. It has a collaborative social climate in which students collaborate with each other to gain knowledge. (Atiya, 2009, 116).

This strategy is attributed to Dr. Spencer Kagan, a teacher in the United States who had a cooperative learning session as a set of structures instead of a single structure, so he called his strategies Kagan Builds. Each structure depends on a precedent(Kagan, 1994, p1).

It consists of ten structures (Find the other half, Find the right person, Find the mistake, Hidden Sort, Question Cube, Two-Person Pen, Verification Indicator, Feedback Engine, Special Envoy, Draw What I Say) and is a hidden ranking strategy within Kagan's strategies distribute The researcher holds the cards related to each team (a certain phenomenon, a picture of something) and each member hides the card from the other members and explains what his card means, then they are sorted according to the perception that the team sees, and then the cards are revealed to confirm this perception. (Zayer et al., 2017: 67).

This strategy belongs to cooperative learning strategies, especially since the learner is active,

which is confirmed by the constructivist theory. Active learner and cognitive learning theories that focus on the learner's role in building and activating his knowledge, usually point-of-view discovery, knowledge discovery, and constructivist theory that sees the learner as a positive, active social participant who interacts with peers, receives, and gives to others. (Atiya, 2018: 174)

The teacher must diversify the teaching methods and methods that are involved in expanding the fields of the educational process, developing their creative abilities, enriching their knowledge and stimulating their thinking, by informing the teacher of modern and advanced methods that help expand the readiness of learners, and develop their tendencies, trends and mindsets that help them achieve the desired goals. (Al-Najdi, 2005: 119)

The importance of the research is:

- 1) Revealing the effectiveness of teaching using the hidden arrangement strategy on the performance of fourth-grade students in science in physics.
- 2) Paying attention to the scientific level of physics and improving the level of achievement and creative motivation for fourth-grade students through the hidden arrangement strategy.
- 3) In the preparatory stage, we guide physics teachers to use such constructive strategies to develop creative motivation and improve the achievement level of female students.
- 4) Use the creative motivation scale, which can be used for the preparatory stage to conduct descriptive and experimental research on other variables.

Third: Research Objectives:

The current research aims to identify the effectiveness of the hidden arrangement strategy in developing the creative motivation of fourth-grade students of science. The following hypotheses must be verified:

Fourth: Research limits:

The limits of research will be limited to

- 1) Spatial boundaries: Dhi Qar / Al-Rifai

- 2) Temporal limits: the first semester of the academic year (2021/2022 AD)
- 3) Objective limits The researcher will be limited to studying the effectiveness of teaching using the hidden arrangement strategy in developing creative motivation for fourth-grade students.
- 4) Human Boundaries: fourth-grade science students.

Fifthly: search terms

hidden ranking strategy

(Zayer et al., 2017) "It is one of the strategies based on dividing students into groups or teams, where the teacher distributes cards with relevant content to each team and hides each member and selects the card from other team members, describes to them what his card expresses, and then arranges according to the perception that The team sees it, then the cards are revealed to confirm this perception" (Zayer et al., 2017, p. 66).

creative motivation

He defined it (Abdul-Hamid, 1987) "It relates to arousing the individual's motivation for things that have value and enabling him to use his abilities and capabilities in actions that make him see himself performing certain activities that constitute him as a hidden state" (Abdul-Hamid, 1987, p. 84).

In her current work, the researcher adopts a theoretical definition of creative motivation (Salvatore Madi, 1965).

From a procedural point of view, the researcher defines creative motivation as follows: The total scores obtained by students when answering the creative motivation scale.

Chapter Two:

(Theoretical background and previous studies)

Hidden order strategy: It is one of the cooperative learning strategies in which students must work in cooperative groups to solve a problem, complete a specific work or task, or achieve a predetermined goal in which each member of the group feels responsible for his group, because his success or failure is a

general success and failure common to him and his group,

Kagan, the author of this strategy, imagined trying to create a team of cooperative learning groups that would help students strengthen their skills in correct sequencing or order, such as organizing war events, organizing numbers, organizing paragraphs, and others.

This strategy relies on student collaboration and the development of language intelligence, speaking, listening, reading and writing skills as they reflect, analyze, speak, read and write what they have learned at Light Associated School and relate them to their daily lives. .

Due to the content of the material, the teacher knows and listens to the answers of all students, unlike the traditional method based on one answer.(kagan & kagan, 1998, 7.p16-18)

Kagan concluded that cooperative learning strategies should be the basic structure of any training course; These structures can be filled with any content to fulfill their function as a framework that gives the lesson a clear shape in the mind of the teacher. Kagan prefers to use the word difference rather than groups, as it suggests solidarity among team members working together to achieve a goal. (Zayer et al., 2014, p. 70)

This strategy is related to fun and entertainment hence it is called educational game strategy because of its ease of use and fun as well as ease of setup because it is easy to use and learn.

The objectives of the hidden ranking strategy are:

- It encourages students to find solutions to problems.
- They can be used in large topics that are difficult to teach, such as the order of events, the order of battles, or the order of paragraphs.
- It develops a spirit of enthusiasm and motivation among students and increases positive interaction among students in developing their creative abilities.
- It increases students' performance in terms of academic achievement, social skills, and emotional climate.

- It helps students to develop thinking, concentration and mutual respect among students.
- Work as a team to collaborate on paragraphs, events, or a series of numbers. (kagan & kagan, 7.p13, 1998)

Action steps to implement this strategy:

- 1) Divide the students into groups or teams.
The teacher divides the students into groups of the same size so that each group consists of at least five people and gives each group a name to facilitate the division.
- 2) The cards are distributed to the team by the teacher, and these cards contain the content of the material and are hidden and not arranged.
- 3) Students think of the cards to explain the contents of their cards.
- 4) The cards are arranged in the order that the team sees.
- 5) Open the cards to make sure that the perceptions of each team are clear to everyone. (Zayer et al., 2017, p. 66)

creative motivation:

At the forefront of advocates of a negative view of creative motives are advocates of psychoanalysis in their inclinations, most theorists of this approach interpreted creative behavior as a way to help relieve tensions that arise from creative association with others, some tensions arising from socially unacceptable desires of the individual, positive motives for creativity, For example: (Gedo), you look at creativity as driven by a healthy desire of the individual to control his environment. This is a concept called (White) called (active motivation). He called it (Cangelosi) the driving force of the need for control. Some proponents of this approach have found that, rather than controlling for aggression, proponents of the negativity bias view creativity as the main driver of creativity, the determinant of negativity bias. Many researchers support this view, including humanistic psychologists such as Rogers and Maslow. (Al-Kinani, 2011: 152-153)

Rogers believes that creativity is motivated by the individual's tendency to reach himself and the desire to express his or her potential.

Likewise, Maslow points out that self-actualization is not driven by the desire to succeed, nor is it the result of a shift (action) in controlling the impulse to control, which psychoanalysis forbids. But Maslow brilliantly invents self-actualization as an automatic expression of the satisfaction of one's basic needs.

Motivation-to-creativity ratio is the role that intrinsic and extrinsic motives play in creativity. Intrinsic motivation is defined as the state of participation in the activity for primarily intrinsic reasons, and what drives a person to creativity is primarily the awareness of the activity for intrinsic reasons, and what drives the individual to be creative is the awareness of the activity., In addition to individual pleasure in and opposite the job itself, it is Defines the extrinsic motivation associated with the job itself, for example: to receive an expected reward, to win a competition, or to meet other requirements. Therefore, it is determined by the individual's knowledge of what he expects from external rewards and their internal perceptions and orientations in relation to the work they do. (Al-Kinani, 153: 2011)

(Amabile and others) focused on the importance of motivation for creative productivity and its importance between the real motivation within the individual and the non-essential extrinsic motivation outside the individual. For example, intrinsic motivation may include pleasure or personal desires only through creativity to solve a problem. While extrinsic motives may include a desire for fame or fortune, according to (Amabile), an intrinsic motive is necessary for creativity, while an extrinsic motive cannot compensate for it. (Al-Khairi, 2012: 262).

Maslow distinguished two types of such self-realizers according to the frequency with which the value is obtained, the first type are those who achieve value repeatedly and he calls them climbers or climbers, and the second type are those who try to climb but fail to reach. Or get to the top, only telling him certain times and not going up or up. He is the one who tells them not to reach the top. The two types share features of self-actualization, with the difference that the first type peaks more than the second type. (Al-Rimawi et al., 224: 2004) Therefore, the self-actualization needs of the individual have been

defined in his desire to realize his potential. He expressed the meaning of self-actualization (whatever one might be) and self-actualization depends on active understanding or clear knowledge of one's capabilities and limitations. (El-Sayed et al., 1990: 443)

Second: Previous studies:

- ❖ Al-Janabi (2019) conducted a study aimed at knowing the effect of the hidden arrangement strategy for fifth grade students on expressive performance in Iraq. The researcher used the experimental method, and the research sample consisted of 51 students, with (24) students in the experimental group and (27) in control group. The researcher used the tools of selecting the subject of the final test - the criterion for correcting the topics of written expression - the exploratory application of the test - the application of the test - the correction of the test. The researcher used the t-test and the chi-square (Chi-square X2) and Pearson's correlation coefficient, and the results showed that there was a statistically significant difference between the experimental and control groups on the two tests due to the teaching method in favor of the experimental group, which studied using the hidden arrangement

strategy. Training of in-service teachers to use them.

Studies on creative motivation

- ❖ Al-Khuza'i (2016) Creative Motivation and its Relationship to Quality of Life among University Students.
- ❖ Al-Faraji (2015) Creative Motivation and its Relationship to Aesthetic Judgments and Productive Thinking among Students of Fine Arts Institutes.

Chapter three.

Research Methodology and Procedures

First: Experimental design: The experimental design is a work program for the procedures for implementing the experiment and a blueprint for the circumstances and factors surrounding the experiment so that the researcher can observe them and choose the differences to reach honest and accurate results about the relationship between the independent and dependent variables, and since the current research includes two variables:

One of them is the independent variable represented by the strategy (hidden arrangement) and the dependent variable (creative motivation). The researcher chose the experimental design to design equal groups with a pre and post scale for creative motivation, as shown in Figure (1)

Test	Dependant variable	independent variable	parity	Group
Dimensional creative motivation scale.	Creative motivation.	hidden ranking strategy	Chronological age in months	Experime ntal
		Usual way	The educational attainment of the parents. IQ test (Danleys) Previous creative motivation scale	Adjuter

Second: The induction community and its sample:

A.the research community

The research community consists of fourth-grade students of science, all of them in government (preparatory and secondary) day schools in Dhi Qar Governorate / Al-Rifai Education Department for the academic year

(2021-2022), distributed over (17) schools according to the statistics obtained.

The researcher is from the Statistics Division of the Directorate of Education in DhiQar

B- Research sample

The research sample is divided into:

- a) A sample of schools: After identifying the names of the girls' preparatory and

(30) students. And Division (A) to represent the control group, whose number of students reached (32) students, and thus the total number of the research sample was (62) students in a preliminary manner, and after the

N.O of students	N.O of branches	School	T
157	3	Sada al najah	1
140	3	Ramlah for girls	2
141	3	Al qawareer for girls	3
30	1	Al mubahala	4
20	1	Al mansourah	5
20	1	Al shibani	6
26	1	Al sada al ikhwaan	7
19	1	Bawabat al iraq	8
36	1	Al sadr al aoula	9
21	1	Al ethaar	10
29	1	Al shaikh al khamaysee	11
33	1	Nahdat al husain	12
13	1	Al nebraas	13
53	1	Mouta	14
32	1	Al tahtheeb	15
63	2	Arwa bint al harith	16
37	1	Al ensheraah	17
Total			870

secondary government day schools affiliated to the center of Dhi Qar Governorate, the researcher randomly chose (Al-Rifai middle school for girls).

- b) A sample of female students: After determining the school, the researcher visited it according to the book facilitating the task issued by the General Directorate of Education in Dhi Qar. She found two divisions for the fourth scientific grade (B, A), and she randomly chose a section (B) to represent the experimental group, whose number of students reached

two students who failed were statistically excluded from the control group, while ensuring that they remain in their class in order to preserve the school system and the continuity of the school Their teaching, and the reason for their exclusion is that they have previous experiences in the subjects studied during the experiment period that may have an impact on the dependent variables. Thus, the final number of the research sample became (60), with (30) students in each group, and Table (2) illustrates this:

Table (2) The distribution of the research sample students before and after exclusion

Total	Final number of students	Excluded	N.O of students	Group	Branch	T
60	30	There is no	35	Experimental	B	1

	30	2	37	Adjuster	A	2
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Third: Equality of the two research groups:

The researcher was keen to make equivalence with the following variables: (the chronological age of the students calculated in months, the Daniels test of intelligence, the test of previous information, the creative motivation scale)

Table (3) The arithmetic mean, standard deviation, variance and the two values (computed and tabulated) of the chronological age variable calculated in months for the experimental and control group

Statistical significance at the level 0.05	T value		Freedom Degree	Contrast	Standard deviation	SMA	N O students	Group	T
	Tabular	Calculated							
non-functional	2	1,648	58	23,20	4,82	187,20	30	Experimental	1

Table (4) T-test results for the students of the two research groups in the intelligence test (Danleys)

Statistical significance at the level 0.05	T value		Freedom Degree	Contrast	Standard deviation	SMA	N.O of students	Group	T
	Tabular	Calculated							
Non functional	2	1,578	58	137,70	11,73	26,43	30	Experimental	1
				113,52	10,65	31,00	30	Adjuster	2

Table (5) The arithmetic mean, standard deviation, variance and the two T-values (calculated and tabular) for the variable of the previous information test in physics for the experimental and control groups

Statistical significance at the level 0.05	T value		Freedom Degree	Contrast	Standard deviation	SMA	N.O of students	Group	T
	Tabular	Calculated							
Non functional	2	1.586	58	5.54	2.35	10.67	30	Experimental	1
				4.12	2.03	9.77	30	Adjuster	2

Table (6) T-test results for the students of the two research groups in the creative motivation scale

Statistical significance at the level 0.05	T value		Freedom Degree	Contrast	Standard deviation	SMA	N.O of students	Group	T
	Tabular	Calculated							
Non functional	2	0,856	58	149,96	12,25	148,10	30	Adjuster	1

Fourth:**Controlling extraneous, non-experimental variables**

They are the variables that may affect the dependent variable and are not under the researcher's control, and these variables must be taken into consideration when discussing and interpreting the results, because they may affect the validity of the experiment and its results and the possibility of generalizing its results to the community from which the sample was chosen (Atiya, 2010: 180), Accordingly, the researcher tried to adjust the non-experimental variables that she deems may affect the experimental design, which is a fixation of the factors and variables that are related to the phenomenon under research with the exception of the independent factor, and during the experiment a group of factors and variables that affect the research experience,

specifically affect the dependent variable may be In favor or against it, and in order to obtain good results, and to know the effect of the independent factor, the extraneous variables must be controlled before conducting the experiment, i.e., all the variables except for the independent variable should be restricted in order to isolate them and prevent their impact on the result, and the researcher has controlled all the extraneous variables that affect the conduct of the experiment, including (Sample members, physical factors, duration of the experiment, scientific material, research requirements, lessons), the researcher was studying eight lessons per week, at a rate of four lessons for each group, b According to the curriculum of the Ministry of Education and in agreement with the school administration, a schedule of distribution of physics classes for the fourth scientific grade was organized between the two groups in an equal manner, and Table (7) shows this

Table (7) distribution of physics classes between the two research groups

Time	Adjuster	Time	Experimental	Day Group
8,45	The second lesson	9,30	The third lesson	Saturday
9,30	The third lesson	10,15	The fourth lesson	Sunday
9,30	The third lesson	8,45	The second lesson	Monday
10,15	The fourth lesson	9,30	The third lesson	Tuesday

Fifth: Research Requirements:

Before applying the experiment, the basic requirements for the experiment must be prepared, which are:

Defining the scientific material: Before starting the application of the experiment, the scientific material was determined, so it included the chapters that are taught within the annual plan for the content of physics during the first course in a coherent manner and integrated objectives for each of those last four chapters and unified with what the curriculum aims at in general, as it was determined by the following.

- Chapter Five:
- Chapter Six:
- Chapter Eight:
- Chapter Nine:

Formulating behavioral goals

Therefore, behavioral goals were formulated according to Bloom's classification, due to their common use, and the reason for this is that it is impossible to write good questions without knowing their educational goals, that is, questions are placed to know the extent to which goals have been achieved. Therefore, the researcher formulated behavioral goals based on the content of fourth-grade physics. The scientific study included in the experiment reached (154) behavioral objectives according to Bloom's cognitive classification of its six levels, which are (remembering, understanding, application, analysis, synthesis, evaluation) because it is one of the most common, detailed and used classifications and to demonstrate its safety, formulation and suitability to the level measured by its paragraphs. It was presented to a group of The arbitrators and specialists in the field of methods of teaching physics, measurement and evaluation, and in the light of their observations and suggestions, and based on the percentage of agreement, more than (85%) of their opinions, and according to the chi-square equation, some objectives were modified and others reformulated, and none of them were deleted, and the number remained.

Preparation of daily teaching plans:

Since the number of daily teaching plans is the most important requirement for successful teaching, the researcher has prepared daily

teaching plans for the topics of physics that will be studied in the experiment, and in light of the content of the textbook and the formulated goals were prepared as follows:-

- a) Preparing typical daily plans for the experimental group, for the topics that were designed in accordance with the steps of the hidden arrangement strategy, through which the researcher was able to cover all chapters of the subject.

Sixth: The search tool:

The research requires the preparation of a tool to measure the dependent variable (creative motivation), through which we know the extent to which the research objective and hypothesis have been achieved.

Creative Motivation Scale: Creative Motivation is the second dependent variable in the current research. Therefore, it is necessary to prepare an appropriate scale to measure this variable for the students of the basic research sample. The scale was built in light of following the following steps:

- 1) Determining the objective of the scale: The scale objective is to measure the creative motivation of fourth-grade female students of science, the research sample.
- 2) - Determining the aspects of creative motivation: after reviewing the educational literature and studies related to creative motivation, the researcher relied on the aspects identified by the study (Al-Khuza'i) and the study (Al-Faraji). The creative motivation scale consists of (37) paragraphs in its initial form, and Table (8) shows the distribution of the scale's paragraphs within the aspects of the cognitive and emotional domains. Applies to rarely, never to) The researcher took into account when formulating the paragraphs of the scale some of the rules and guidelines related to writing the paragraphs of the Creative Motivation Scale

Table (8) Distribution of the scale items within three domains in its initial form

Paragraphs to which it belongs	field	sequence
1-13	First field	1
14-25	Second field	2
26-37	Third field	3

5- Setting a standard to correct the creative motivation scale: the researcher has set a standard to correct the creative motivation scale. The answer for each paragraph of five alternatives according to the Likert scale was given weights to convert these alternatives into a quantitative number for the purpose of conducting statistical operations. These weights are (1,2 ,3,4,5) respectively for the paragraphs of the scale, and thus the total score of the scale in its final form is confined between (185-0)

2- Validity of the creative motivation scale:

To verify the validity of the scale, the researcher relied on two types of validity:

- 1) Scale validity (apparent honesty): The expression apparent validity is used to refer to what the test appears to measure. In order to verify the validity of the paragraphs of the Creative Motivation Scale, it was presented to a group of arbitrators and specialists in teaching methods, educational psychology, measurement and evaluation to express their opinions on the validity of the paragraphs. Kai
- 2) Structure validity (internal consistency): that each paragraph of the scale must follow the same path as the overall scale, which represents the overall coherent concept of the characteristic to be measured. Verifying this in the light of ascertaining the correlation between students' performance on this paragraph and their performance on the general scale is the test that leads to the validity of building the scale. (Al-Zamili et al., 2013: 258)

The researcher verified the validity of the construction of the creative motivation scale, despite the fact that the scale was apparently true.

6- The exploratory application of the creative motivation scale:

the exploratory application was carried out on a sample of female students from outside the research sample. The exploratory application was carried out in two stages:

The first stage: The creative motivation scale was presented to a sample of (25) fourth-grade students (from outside the research sample) for the purpose of identifying the clarity of the paragraphs of the creative motivation scale and the instructions for answering these paragraphs, as well as identifying the time required to answer paragraphs Scale The time taken to answer the items of the Creative Motivation Scale has been calculated. The average time has been calculated and it was as follows:-

Average time = the sum of the total time for the answers of all the students ÷ the total number of students

Average time $982 \div 30 = 39$ minutes approximately

The second stage: After the researcher made sure of the clarity of the paragraphs of the creative motivation scale and the instructions for answering its paragraphs and calculating the time taken to answer the paragraphs of the scale, the researcher applied the scale again on an exploratory sample consisting of (100 female students) from the fourth grade students. The researcher supervised the application, and it became clear All the values are higher than the tabular value whose value is (1.99) at the significance level (0.05) and the degree of freedom (52), and thus all the paragraphs of the scale are statistically significant, that is, they are distinct

Stability of the creative motivation scale:

It means that the results shown by the test are stable, meaning if the test is re-applied to the same sample and in the same conditions after an

appropriate period of time, the results will be the same. (Al-Attar, 2018: 29).

The stability of the scale was verified by the alpha-Cronbach equation: the researcher used this method to calculate the stability coefficient of the creative motivation scale and found its stability coefficient equal to (0.91), which is a good stability coefficient, as the value of the reliability coefficient from (0.67) and above is good.

Seventh: Statistical Means:

The researcher relied on statistical methods in data processing and interpretation of results.

Fourth Chapter

Presentation and interpretation of results

The scores of the students of the control group who are taught according to the usual method in the creative motivation scale) and after monitoring the students' scores in the creative motivation scale, the statistical results showed that there is a difference between the average scores of the creative motivation scale between the two groups (experimental and control), as the average scores of female students The experimental group (163,73) and the average scores of the students of the control group (151,53), and to test the significance of this difference, the t-test was used for two independent and equal samples. 2) At the level of significance (0.05), and this confirms that the difference between the averages of the two groups is statistically significant, as shown in Table (9):

Table (9) Arithmetic mean, variance, calculated and tabular T-value and degree of freedom for the scores of the research sample students in the creative motivation scale

Statistical significance at the level 0.05	T value		Freedom Degree	Contrast	Standard deviation	SMA	N.O of students	Group	T
	Tabular	Calculated							
Functional	2,03	3,357	58	227,31	15,08	163,73	30	Experimental	1
				168,81	12,99	151,53	30	Adjuster	2

Second: Interpretation of the results :

The results can be interpreted as follows:

- 1) Teaching according to the hidden arrangement strategy helped the students to exchange ideas using evidence and proofs by reorganizing and expanding the knowledge structure and increasing their understanding about the acquired information and facts.

- 2) The nature of the presentation of the educational material according to the hidden arrangement strategy is compatible with the curriculum of the physics book for the fourth scientific grade in terms of presenting the content in a manner consistent with a complete and accurate understanding of scientific information and concepts in

the stage of impact transmission through further consolidation and linking previous knowledge with the acquired knowledge because it provides many opportunities for active interaction between students and the components of the educational environment.

- 3) The hidden arrangement strategy works on the development of the cognitive environment by providing the students with new information so that they develop and develop their scientific knowledge on the positive and activity of the students through experiences using applications and life situations, which helps to understand and perceive the study material in an easier and faster way, thus building knowledge in the correct way and reorganizing the information .
- 4) The hidden arrangement strategy contributed to creating a classroom environment through freedom of expression, directing questions, encouraging female students' participation and eliminating shyness and introversion in order to reinforce their participation behavior.
- 5) Teaching according to the hidden arrangement strategy helped the students to link the previous information with the new experiences and organize it. It also increased the students' ability to analyze biological topics to provide flexibility in the lesson and be more interesting.

In addition to the above, the researcher believes that the hidden arrangement strategy increases the learning motivation of learners, as it encourages them to learn more actively, develops a spirit of cooperation, consultation, participation, and links the study materials with the context of their daily lives.

Interpretation of the results with the second null hypothesis

The results reached by the researcher show that the students of the experimental group who studied physics according to the hidden arrangement strategy outperformed the students of the control group who studied the same subject in the usual way in terms of creative

motivation, and I attribute this to the following reasons:

- 1) The use of the hidden arrangement strategy provided the students with opportunities to work with their colleagues, whether in the expert groups or the original groups. desired goal.
- 2) The students' work within the expert groups and the original groups and their cooperation together in performing the tasks, as well as the school's follow-up to the work of these groups and correcting the course of work on a timely basis helped many students increase their motivation towards physics.
- 3) that teaching using the hidden arrangement strategy provides the students with the opportunity to build their biological knowledge through positive interaction between the students themselves, as well as interaction with the teacher of the subject; Which makes learning meaningful and motivating.
- 4) The lesson was presented according to the hidden arrangement strategy. It provided an interactive environment in which the students were positive and active, and this helped to stimulate the creative motivation of the students towards physics.

This result was in agreement with the results of studies that adopted motivation as a dependent variable in the teaching process, in which the superiority was in favor of the experimental group.

Third: Conclusions:

Based on the results that appeared, the researcher concludes the following:

1. Teaching according to the hidden arrangement strategy has a positive effect in raising the level of achievement of physics for fourth-grade female students compared to the usual method.
2. Teaching according to the hidden arrangement strategy had a positive effect on developing their creative motivation.

Fourth: Recommendations:

In light of the findings of the research, the following recommendations can be formulated:

- 1) Conducting in-service training courses for male and female physics teachers to train them on the use of modern strategies, including the hidden arrangement strategy.
- 2) The preparation of the creative motivation scale for the fourth scientific grade in the physics book helps in providing physics teachers for the preparatory stage with this scale from my point of view.
- 3) Inclusion of modern strategies, including the hidden arrangement strategy, in the vocabulary of methods of teaching physics in the faculties of education and basic education in order to improve and develop the level of preparation of the physics teacher.
- 4) Directing teachers of science subjects in general and physics in particular to diversify the use of various strategies in teaching such as the hidden arrangement strategy because of its role in achieving the objectives of teaching scientific subjects to raise the level of achievement.
- 5) The necessity for the Ministry of Education to issue a guide for physics teachers that includes modern strategies with an explanation of the various steps and mechanisms that it takes to keep pace with the development in the educational sciences.

Fifth: Suggestions:

To complement this study, the researcher suggests making use of the hidden arrangement strategy in conducting a number of the following scientific studies and research:

- 1) Conducting studies to identify the effect of using the hidden arrangement strategy in physics on other dependent variables such as (attitudes - scientific thinking - logical thinking - tendencies)
- 2) Conducting studies similar to the current study in subjects (biology - chemistry - mathematics) and in other study stages (primary and intermediate levels)
- 3) Conducting a comparative study between the hidden arrangement strategy and other modern teaching

strategies and its impact on achievement and mental skills.

- 4) Conducting a similar study by adopting the hidden ranking strategy on middle school students, taking into account the gender variable.

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