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The impact of wave discovery and brainstorming strategies on students' positive thinking and learning for improving free-style swimming abilities

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Abstract

The study aimed to create a positive thinking scale and determine the effectiveness of guided exploration and brainstorming approaches in developing positive thinking. In addition to learning free swimming, students will benefit from the impact of guided exploration and brainstorming approaches on positive thinking and free swimming. As is appropriate for the nature of the study, the researcher employed the experimental approach of constructing two equivalent groups with a pre-and post-test. The research community was decided by the first-stage students in the College of Physical Education and Sports Sciences/Al-Qasim Green University for the academic year 2022/2023, which totaled (63). After three students were taken out, the research sample was comprised of 60 pupils, which represented 95.23% of the community. This was due to one of them becoming unwell and the other two being absent frequently, and it was separated into numerous samples per the study methods. The most important conclusions were reached, which are that the two methods (guided discovery and brainstorming) had an impact on developing positive thinking for students. In addition to learning the skills of forward flow, leg skill, arm skill, and evaluating the technical performance of freestyle swimming for students. And that the two methods (guided discovery and brainstorming) have the same effect in developing positive thinking for students learning freestyle swimming. In addition, the same effect in learning the skills of forward flow, leg skill, arm skill, and evaluating the technical performance of freestyle swimming for students learning freestyle swimming.

Keywords: Wave discovery, brainstorming, swmming, skills.

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1-1 Introduction:

The teaching process is planned and systematic, with interrelated aspects. This process is unable to be accomplished without the following elements: the student, the teacher, and the curriculum. In contrast, the prerequisites for educational achievement have placed an essential demand on the learning process. This is the teaching technique, which are an essential component that comprises the treatment of main factors that arise throughout the lesson and are connected to the teacher, the student, and the aim. In addition, the lesson should focus on deliberate instructional actions that help students develop physically, socially, mentally, intellectually, and morally. By choosing the optimal approach from a variety of options, each with unique qualities that set it apart from the others. These strategies include guided discovery and brainstorming. They are regarded as current strategies that have proven helpful in orienting educational ideas toward innovation and creativity. These strategies view the student as a central axis in the learning and teaching processes. They additionally encourage scientific thinking among youngsters by creating scientific circumstances and strengthening intellectual abilities, mental processes, and drive to study.

Furthermore, it focuses on increasing pupils' self-confidence, sense of accomplishment, and growth. It also boosts students' engagement and excitement for studying and schooling. Its significance is in how to instill positive thinking in students, hence increasing the efficacy of the learning process. The student's use of positive thinking contributes to skill development and the success of the learning process. Given that the talent and determination to accomplish it arise from positive thought, who is the leader in practicing this skill in its right form? Rather than being the pathway to human accomplishment on all levels. Since the human being is the outcome of his thoughts, anytime he thinks positively, he achieves favorable results. Since the educational process is performed properly, it will consequently contribute to the success of the teaching process and thus achieve the goals of the educational process.

Swimming is unique among sports. Its movement occurs in the aquatic environment, which differs significantly from the typical environment (land) in terms of characteristics, density, and the sort of resistance exerted on the body when moving. This presents a difficulty or barrier for the pupil when learning the various swimming skills. Swimming abilities are reciprocal in nature, requiring repetition and practice to develop. As a result, different methodologies and approaches must be employed than others to attain the research's high value. The study's research was important since it provided light on the usage of current and diverse teaching approaches, such as guided exploration and brainstorming. These methods empower students by involving them in the educational process, fostering positive thinking, and teaching fundamental swimming skills.

1-2 Research Problem:

As a swimming teacher and director of Waves Academy for Teaching Swimming, the researcher participated in and gained expertise in the teaching and learning processes. It was observed that many pupils struggle to develop swimming skills owing to a variety of psychological and physical issues. These issues may represent the problem of reluctance to practice swimming in general and entering the water specifically. This fails to learn and master it properly. This is the situation faced by teachers while teaching swimming. As a result, the researcher attempted to solve the issue by doing a study and looking for a teaching approach that would assist students in overcoming the challenge of learning freestyle swimming abilities.

The two approaches of guided exploration and brainstorming were chosen because they may help them teach swimming skills by determining the best teaching strategy.

For the objective of fostering positive thinking via various and graded degrees of difficulty, encouraging and improving their performance, and understanding the possibilities of investing their learning in freestyle swimming.

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1-3 Research objectives:

The current research aims to:

1- Prepare a positive thinking scale for students of the College of Physical Education and Sports Sciences at Al-Qasim Green University.

2- Identify the effect of the guided discovery and brainstorming methods on positive thinking and learning free swimming for students.

3- Identify the superiority of the influence between the guided discovery and brainstorming methods on positive thinking and learning free swimming for students.

1-4 Research hypotheses:

1- There is a positive effect of the guided discovery and brainstorming methods on developing positive thinking and learning free swimming for students.

2- There is an advantage for the brainstorming method over the guided discovery method in developing positive thinking and learning free swimming for students.

1-5 Research areas:

1-5-1 Human field:

- Students of the College of Physical Education and Sports Sciences - Al-Qasim Green University - First stage.

1-5-2 Time frame: From 2/23/2023 to 4/26/2023.

1-5-3 Spatial frame: Iraq Swimming Pool - Al-Qasim District.

1-6 Terms used in the research:

- Positive thinking:

"A mental activity that uses perception, imagination and memory to direct mental energy to solve problems and confront complex or new situations that require a specific behavior restricted by the surrounding circumstances and the relationships between the parts of this situation or between it and other previous situations from the person's past experiences."

2-1 Research Methodology:

The researcher used the experimental method by designing two equivalent groups with a pre-test and post-test, which is compatible with the nature of the research problem.

2-2 Research community and sample:

The research community was determined by first-stage students in the College of Physical Education and Sports Sciences / Al-Qasim Green University for the academic year 2022/2023.

Their overall number of students was (63), and the study sample was chosen from the community at a rate of 95.23%, after eliminating three students. This was due to one of them feeling ill and the other two were frequently absent. It was separated into numerous samples according to the requirements of the study processes, as stated in Table (1), as follows:

1- The exploratory experiment sample (10) students.

2- The sample for preparing the positive thinking scale (60) students, including the survey sample.

3- The main experimental sample: It was chosen randomly and included (30) students, (15) students from Section (B) who studied using the guided discovery method and (15) other students from Section (C) who studied using the guided brainstorming method, representing the two experimental groups.

Table (1) Illustrates the sample sizes for the two study groups

Groups	Total Number	Excluded students	Exploratory experiment sample	Research sample individuals	Scale Setup Sample	Percentage
A	28	1	5	15	27	96.42%
B	35	2	5	15	33	94.28%
total	63	3	10	30	60	95.23%

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2-3 Homogeneity and Equivalence:

2-3-1 Homogeneity:

The research sample was homogeneous in terms of factors (length, mass, handling skill, rolling skill, extinguishing skill, and optimistic thinking). Following that, the researcher used statistical treatments for these variables, determining the skewness coefficient for each. Table (10) depicts the homogeneity of the research sample.

Table (2) Illustrates the homogeneity of the research sample participants

No.	Variables	Unit of measurement	S	A	Torsion coefficient
1	Length	**cm**	.13171	.494	0.986
2	Mass	kg	61.22	.654	0.821
3	Front Flow Test	degree	2.99	0.86	0.777
4	Skill test of the legs	degree	3.22	0.82	0.864
5	Arms Skill Test	degree	13.3	0.76	0.551
6	Freestyle Technical Performance Evaluation Test	degree	3.22	0.82	0.743
7	Positive thinking	degree	17.88	2.99	0.564

2-3-2 Equivalence between two research groups:

After confirming that the research sample was homogeneous, the researcher used a (t) test to determine equivalence between two independent samples. In order to determine the difference between the two groups arithmetic means, it was discovered that there was no significant difference in the research variables. The differences were not statistically significant at the 0.05 level. This shows equivalency between the two groups, as seen in Table 3.

Table (3) Demonstrates the homogeneity of the research sample members

No.	Variables	Unit of measurement	Group (1)		Group (2)		Value (t)	Significance level	Significance
			S	A	S	A			
1	Front Flow Test	degree	3.212	0.967	3.231	0.81	1.908	0.078	Non-function
2	Skill test of the legs	degree	3.864	0.887	3.799	0.75	1.998	0.323	Non-function
3	Arms Skill Test	degree	3.721	0.934	3.801	0.83	1.906	0.231	Non-function
4	Freestyle Technical Performance Evaluation Test	degree	3.224	0.996	3.301	0.73	1.554	0.093	Non-function
5	Positive thinking	degree	17.882	3.934	17.454	3.08	1.093	0.452	Non-function

2-4 The techniques, instruments, and devices used in research

- Arab and foreign sources and the Internet.
- Note.
- Research skills test results registration form.
- Objective tests.
- Japanese-made (GVC) video camera with camera holder.

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• Japanese-made (CASIO) hand calculator.
• DVD discs.
• Metal measuring tape.
• Height and weight measuring device.
• (30) buoyancy boards.
• (30) swimming goggles.
• (30) swimming hair clips.
• (4) whistles.

2-5 Field research procedures:

2-5-1 Positive thinking scale:

The researcher adopted the Asaad Mohi Mahmoud (2015) (1) positive thinking scale (Appendix 1) which he designed on a sample of students from the College of Physical Education and Sports Sciences. The scale consists of (23) paragraphs and the researcher conducted the scientific foundations for it as it enjoyed a high degree of validity and reliability.

2-5-2 Tests utilized in the study:
2-5-2-1 Forward flow test:
The objective of the test:
The ability to flow for the longest possible distance.
Performance specifications:
The learner stands inside the swimming pool at its beginning, in the shallow side area of the pool, and when the start signal is given, the learner takes a deep breath and lowers the head into the water, then pushes the wall with the feet and flows for the longest possible distance. Performance conditions: The learner performs two attempts and the best one is taken.
Recording:
The recording is for the longest possible distance using a metal measuring tape.

2-5-2-2 Arm skill test:
Test objective: To measure the technical performance of arm movement.
Tools used: Float board.
Performance specifications:
The learner stands inside the swimming pool at its beginning, in the shallow side area of the pool, and when the start signal is given, the learner places the flotation board between the thighs, noting the extension of the legs and head inside the water and rows with the arm movement for a distance of (10 m).
Performance conditions: The learner performs two attempts and the best one is taken.
Recording:
Recording the scores of (4) judges for the best attempt, calculated from (10) scores, then the average scores of two of the four judges are taken after excluding the highest evaluation score and the lowest evaluation score for two judges.
2-5-2-3 Legs skill test:
Test objective: To measure the technical performance of the legs.
Tools used: Float board.
Performance specifications:
The learner stands inside the swimming pool at its beginning, in the shallow side area of the pool, and when the start signal is given, the learner holds the flotation board with both hands, noting the extension of the arms and head inside the water and swims with the movement of the legs for a distance of (10 m).
Performance conditions:
The learner performs two attempts and the best of them is taken.
Recording:

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Recording the scores of (4) judges for the best attempt, calculated from (10) scores, then the average scores of two of the four judges are taken after excluding the highest evaluation score and the lowest evaluation score for two judges.

2-5-2-4 Freestyle swimming technical performance evaluation test

Test objective: Front crawl swimming.

Performance specifications:

The learner stands inside the swimming pool at its beginning, in the shallow side area of the pool, and when the start signal is given, the learner pushes the edge with the feet and flows and swims a distance of 25 m.

Registration:

The scores of four judges are recorded, and the average of two of the four judges' scores is calculated. After eliminating the best and lowest assessment scores from two judges. Appendix (6) of the registration form has six dimensions, one for each movement. Except for arm movement, which has two dimensions. The greatest score for one dimension is three degrees, while the lowest score is one degree. Therefore, the learner's greatest possible assessment is (18) degrees. The learner's lowest possible evaluation is six degrees.

2-6 Exploratory experiment:

The exploratory experiment is "a miniature experiment similar to the real experiment".

Therefore, the researcher conducted an exploratory experiment on Thursday, 2/23/2023, at ten o'clock in the morning, on a sample of (10) students from the research community.

The purpose of the exploratory experiment was:

- To understand the problems that the researcher faces.
- Determine the authenticity of the equipment and tools utilized.
- To verify that the tests utilized in the research are appropriate and easy to administer.
- Ensure that the work team is ready to implement the tests.

2-7 Pre-tests:

The pre-tests for the research sample were conducted on Sunday (2/26/2023) for the positive thinking scale and on Monday (2/27/2023) for the skill tests (forward flow skill test, arm skill test, leg skill test, freestyle swimming technical performance evaluation test). The positive thinking scale was applied and the tests were conducted at the Iraq Pool - Al-Qasim District, in the presence of the assistant work team. The researcher used the test imaging method to measure the technical performance of swimming.

2-8 The educational curriculum:

Following the completion of the pre-tests, two introduction modules were distributed: one for the first group and the brainstorming group. The second experimental group, which learns through play, now receives an introduction unit. Following that, the educational program was implemented by the College of Physical Education's curriculum for indoor soccer terms. However, it was used in conjunction with the brainstorming approach for the first experimental group and the learning by playing method for the second experimental group. The curriculum was implemented from Tuesday (2/28/2023) to Sunday (4/23/2023) in the Iraq Swimming Pool, Al-Qasim District. The researcher created a timetable for the terminology of both the guided exploration and brainstorming methods.

2-9 Procedures of my research group during the implementation of the educational program:

2-9-1 Procedures for the Guided Discovery Method:

The researcher established the prerequisites for the directed discovery technique from the directed particular inquiries. The teacher begins by applying the lessons learned during the absence, followed by the general warm-up outside and the specialized one within the water. Following that, the instructor asks the students questions concerning the kind of movement for the skill to be mastered and allows them time to consider. As Well As by the knowledge they have and retain in their memory. After gathering the information, the students answer the following questions. By finding it in a dynamic style and providing all right answers for the talent as a whole. The student assists them in

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reaching their peak level of performance. As an instance, the teacher may ask the following questions on the skill of flow and leg strikes:
Q: How should the student's body position be while performing the slide and leg strikes, relaxed or tense?
A: It should be relaxed and the torso should be extended in a straight line (instructor reinforcement) Correct
Q: How many exercises should be done for the arm skill?
A: Holding the board Performing leg strikes Moving the arm (instructor reinforcement) Very good
If students do not respond to one of the questions, it indicates that they are unable to understand it. In that situation, the teacher should reword the question for the pupils. Alternatively, ask alternative questions that are intelligible and relevant to the skill to be acquired. Students can respond accurately and with movement. Following that, the lesson concludes with brief games before leaving.

2-9-2 Procedures for the Brainstorming Group Method:
The second experimental group was taught using the brainstorming method and the session was held in the educational part of the educational unit as follows:
First:
The instructor simplifies and explains the skill, followed by a discussion of the student's difficulties with that skill. The duration of this level is 6 minutes.
Second:
the instructor might require students to reformulate the problem by determining its dimensions based on their expertise. At this point, it is not necessary to provide solutions. Instead, ask questions relevant to the subject, such as: 1- Can high leg and head stroke performance be achieved?
2- Is it feasible to do arm movements without using leg strokes?
3- Is it feasible to swim totally without breathing for 15 meters?
The duration of this level is 6 minutes.
Third
it prepares the brainstorming session, during which the instructor offers students a defined amount of time (6 minutes) to ponder and think about the issues raised in the previous stage.
Fourth:
This step is known as the brainstorming stage because pupils were given the opportunity to offer their ideas on the issue (a learned ability). The concepts offered are open-ended, and students must be encouraged to engage in the session. This increases rivalry and challenge among them, considering the implementation of brainstorming concepts, including:
- Accept all ideas and do not criticize them or issue any comment or judgment on them and do not allow that at all.
- Focus on quantity and not quality.
- Welcome all ideas presented, which constitutes a positive reinforcement for students. - Continue thinking about others' solutions and ideas in order to reach more advanced ideas by integrating and improving them.
- Postponing evaluation It is not permissible to evaluate any of the ideas generated during the students' performance.
- The students were divided into three groups, each group (5) students, and the duration of this stage was (6 minutes), and the ideas presented were recorded so that they would be clear to everyone. Among the ideas presented by the students: - Increasing the number of swimming skills lectures per week.
- Reducing warm-up exercises to reduce fatigue during the educational unit.
- Dividing the lectures into two weeks, a practical week and a theoretical week.
- Conducting a theoretical exam on the skill and then a practical application.
Throughout the discussion, all of the ideas provided were documented on the board. This motivates the kids to solve the challenge.
By providing several additional ideas (without any review) and not noting names. In addition to structuring the significant concepts given, organize and link them together in preparation for categorization. This was completed prior to the end of the session.

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Fifth:
This stage is called the stage of identifying the strangest idea. The session leader asks the students to identify the strangest ideas presented. Which are far from routine or usual ideas, and there are three types of ideas presented: ideas far from reality and difficult to implement, illogical ideas. They have no relation to learning the two skills, and logical ideas that are easy to implement. This stage takes (6 minutes).
After choosing the most appropriate solutions and ideas presented by the students in the brainstorming session, these ideas and solutions are applied in the form of practical exercises by the students in the practical side of the main section and in the same educational unit in which the brainstorming session was held, as shown in Appendix (2).

2-10 Post-tests:
The post-tests were administered on Tuesday (4/25/2023) for the positive thinking scale and Wednesday (4/26/2023) for the skill assessments. The researcher used the identical circumstances and methods for the pre-tests, including the time and location of the tests, the assistance work team, and the technique of computing the test score.

2-11 Statistical methods
The researcher used the statistical package (SPSS) by using the following statistical methods:
1- Percentage.
2- Arithmetic mean.
3- Standard deviation.
4- Skewness coefficient.
5- Chi-square coefficient.
6- Test (t) for correlated samples.
7- Test (t) for independent samples.
8- Simple correlation coefficient.
9- Quodricharson coefficient.
10- Spearman-Brown coefficient.

3- Presenting the results, analyzing them, and discussing them:

3-1 Presentation of the results of the impact of guided discovery and brainstorming styles on the development of positive thinking among students in freestyle swimming, along with analysis and discussion.

3-1-1 Presenting the results of the differences between the pre-test and post-test for positive thinking in the first and second experimental groups, along with analysis and discussion:

To determine the significance of the differences between the pre-and post-tests of positive thinking for students in the two experimental groups, the researcher employed the (t) test for matched samples, and the findings are provided in Table 4.

Table (4) Presents the arithmetic means, standard deviations, computed (t) value, and significance of the difference between pre- and post-tests for positive thinking in two experimental groups

No.	Skills	Pre-Test		Post-Test		Calculated value (t)	Significance level	Significance
		S	A	S	A			
1	Group 1 Guided Discovery	17.88	3.93	21.45	2.94	3.983	0.002	function
2	Group 2 Brainstorming	17.45	3.08	22.76	2.45	7.935	0.000	function

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Table (4) shows that there are statistically significant variations between the two experimental groups' pre-test and post-test scores for optimistic thinking. The computed value of (t) for the first group was (3.74) at a significance level of (0.002), which is less than the threshold of (0.05). This verifies the importance of the differences and favors the post-test, whereas the computed value of (t) reached (4.43) for the second group at a significance level of (0.00), which is less than (0.05). This confirms the significance of the differences and supports the post-test, which is consistent with the first hypothesis of the study. This demonstrates the effectiveness of using the two teaching strategies to promote positive thinking. In addition, students use it to study and perform in their academic and practical lives. This indicates that the instructional program was applied to the first and second experimental groups. It has given special attention to the subject of positive thinking, since the student is exposed to a variety of techniques and scenarios.

Whether by learning the new skill or by practicing it, and also through his participation and interaction, all of this results in different perceptions of himself. The researcher also sees that the effectiveness of the two methods that were applied to the two research groups. And what each method contains of behavioral patterns within the lesson, with giving him instructions and instructions for each vocabulary of the curriculum. Which led to achieving development in the learning time for each group in the main section of the lesson. Which focused on the learning process for skills, including what this section contains of educational activity, in which the skill is explained and presented, with directing questions specific to each method about the skill to prepare students to answer questions in a kinetic way in the applied activity and work to increase the repetitions of correct performance in order to reach mastery in performance, and to correct errors by the teacher and give self-feedback or provided by the teacher, all of this helped develop positive thinking for students.

4-1-2 Displaying, analyzing and discussing the results of the differences in the post-test between the two experimental groups for positive thinking.

In order to identify the significance of the differences in the post-test between the two experimental groups for positive thinking, the researcher used the (t) test for independent samples and the results are shown in Table (5).

Table (5) shows the arithmetic means, standard deviations, calculated (t) value and significance of the difference for the post-test between the two experimental groups for positive thinking

No.	Variable	Guided Discovery Group		group Brainstorming		Calculated value (t)	Significance level	Significance
		S	A	S	A			
1	Group 1 Guided Discovery	21.45	2.94	22.76	2.45	1.945	0.23	Non-function

By observing Table (5), it appears to us that there are no statistically significant differences between the two experimental groups in the post-tests for positive thinking, as the calculated (t) value reached (1.945) and a significance level of (0.23), which is greater than a significance level of (0.05), which confirms the randomness of the differences between the two groups. This result came in violation of the second hypothesis, which indicates that the brainstorming method is more effective in developing positive thinking among students than the guided discovery method.

4-2 Presenting, analyzing and discussing the results of the impact of the guided discovery and brainstorming methods on students' learning of freestyle swimming:

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4-2-1 Presenting, analyzing and discussing the results of the differences between the pre- and post-tests of the skills of the first experimental group:

For determining the significance of the differences between the pre- and post-tests of the abilities evaluated for the first experimental group (directed discovery), the researcher employed the (t) test for symmetrical samples, the results of which are provided in Table 6.

Table (6) Displays the arithmetic means, standard deviations, computed (t) value, and significance of the difference between pre- and post-tests for the first experimental group (guided discovery) on the abilities investigated

No.	Skill	Pre-Test		Post-Test		Calculated value (t)	Significance level	Significance
		S	A	S	A			
1	Forward Flow Skill	3.212	0.967	7.923	1.523	7.992	0.00	function
2	Skill of the legs	3.864	0.887	7.532	1.324	9.953	0.00	function
3	Arms skill	3.721	0.934	6.932	1.421	8.992	0.00	function
4	Evaluation of the technical performance of swimming	3.224	0.996	7.012	1.523	5.873	0.00	function

Table (6) shows that there are statistically significant variations between the pre-test and post-test scores for the first experimental group, which employed the guided discovery approach and the abilities investigated. This demonstrates the importance of the differences in favor of the posttest. This is consistent with the initial hypothesis of the study.

Through the results, we note that the guided discovery method has a positive effect on learning the forward flow skill, the leg skill, the arm skill, and the evaluation of the technical performance of freestyle swimming.

The researcher attributes this to the positive learning experience through the guided discovery method and the educational program prepared by the researcher within this method.

The learner's position is often positive, active, and effective. Taking everything that is thrown at him as valid and accepting it as it is does not make him a recipient. On the contrary, it is more like the position of the exploring researcher. As "the most important step in the guided discovery method is determining the sequence of steps. As for questions or keys to the solution, they lead the learner to discover the final result. Each step builds on the response that is achieved in the previous step. The guided discovery must be built to lead to one correct response to one key."

The role of the subject instructors in asking questions related to the guided discovery method is important in the sample members' kinetic response to the parts of the skill. Focusing on increasing the repetitions of performance of the skill required to be learned and paying attention to providing feedback to the students by the instructor. This leads to increasing the effectiveness of the students and their interest in learning, which gave positive results in this method. The educational program prepared by the researcher led to the development of the level of awareness among the research sample members as a result of using the correct method in teaching, which helps to increase the kinetic experiences of the research sample members as a result of using the appropriate method in teaching. This is consistent with what was indicated by Wagih Mahjoub 2000 "Experiences have shown that correct teaching of skills achieves the best results because understanding the relationships between the elements of the skill and creating the foundations of kinetic memory helps to develop the level of learning." The researcher believes that performing this skill as a single unit enables the student to retrieve and remember the skill to perform it as a unit with interconnected parts, which

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helps to perform it smoothly and with high motor coherence. “When we talk about the stages of learning a motor skill, the nature of the components of the motor skill must be taken into consideration in terms of (motor and cognitive) and (cognitive) abilities that change continuously with practice and improve performance.”

4-2-2 Presenting, analyzing and discussing the results of the differences between the pre- and post-tests of the skills of the second experimental group (brainstorming):

To identify the significance of the differences between the pre- and post-tests of the skills of the second experimental group (brainstorming), the researcher used the (t) test for symmetrical samples, and the results are shown in Table (7).

Table (7) The arithmetic means, standard deviations, the calculated (t) value, and the significance of the difference between the pre- and post-tests of the second experimental group (brainstorming) of the skills of the respondent

No.	Skill	Pre-Test		Post-Test		Calculated value (t)	Significance level	Significance
		A	S	A	S			
1	Forward Flow Skill	3.231	0.81	8.932	1.34	11.982	0.00	function
2	Skill of the legs	3.799	0.75	7.983	0.98	11.998	0.00	function
3	Arms skill	3.801	0.83	7.992	1.43	15.832	0.00	function
4	Evaluation of the technical performance of swimming	3.301	0.73	8.932	1.54	7.998	0.00	function

By observing Table (7), it appears to us that there are statistically significant differences between the pre-test and post-test of the second experimental group that used the brainstorming method and for the three skills, which confirms the significance of the differences in favor of the post-test, and this also agrees with what was stated in the first hypothesis of the research.

The researcher attributes the reason for this effect to the educational method that was applied scientifically in terms of the availability of devices and tools and the role of the subject teachers in asking questions related to the brainstorming method so that the sample members respond in a kinetic way to the parts of the skill. The educational program based on applying the brainstorming method also has an effective role in creating the principle of cooperation between the teacher and the student in applying the program's vocabulary. The brainstorming method also showed the highest percentage of student motor activity and interaction between them, and thus achieving a high percentage of learning swimming skills. One of the things that the researcher took into account during the period of applying the brainstorming method on the research sample is the use of feedback by the teacher in order to raise their level of learning.

4-2-3 Displaying, analyzing and discussing the results of the differences in the post-test between the two experimental groups for the skills studied:

To identify the significance of the differences in the post-test between the two experimental groups for the skills studied, the researcher used the (t) test for independent samples and the results are shown in Table (8).

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Table (8) The arithmetic means, standard deviations, the calculated (t) value and the significance of the difference for the post-tests between the two experimental groups for the skills studied.

No.	Skill	Guided Discovery Group		group Brainstorming		Value (t)	Significance level	Significance
		A	S	A	S			
1	Forward Flow Skill	7.923	1.523	8.932	1.34	1.932	0.078	Non-function
2	Skill of the legs	7.532	1.324	7.983	0.98	2.082	0.342	Non-function
3	Arms skill	6.932	1.421	7.992	1.43	2.012	0.232	Non-function
4	Evaluation of the technical performance of freestyle	7.012	1.523	8.932	1.54	1.832	0.087	Non-function

By observing Table (8), it appears to us that there are statistically significant differences between the two experimental groups in the post-tests. This result also contradicts the second hypothesis, which indicates that the brainstorming method is more effective in learning free swimming for students than the guided discovery method.

This is because it is noticeable that the first and second experimental groups, which used the guided discovery and brainstorming methods, in which the student seeks more research and continues to work, because the nature of the questions posed by the subject teacher encourages them to think about how to answer in a kinetic way, as well as the fact that the learner in this method learns the skill himself through discovering it, which makes him more effective, exciting and stimulating towards learning in the method followed because the learner feels the value of the learning process because he has contributed to it and found that his contribution was productive and its outcome was his discovery of the skill, which increased the learner's motivation towards learning with these two methods, and we also see that the teaching of the subject and the educational curriculum prepared by the researcher had the main role in these two methods having a similar role in delivering the educational material to the students and achieving comprehensive benefit in developing positive thinking and learning some basic football skills for students.

5. Conclusions and recommendations:

5-1 Conclusions:

Based on study results, statistical data analysis, and instructional curricula for both techniques, the researcher made the following conclusions:

1- The two strategies (guided exploration and brainstorming) affect students' positive mindset while learning freestyle swimming.

2- The two techniques (guided exploration and brainstorming) helped students gain forward flow skills, leg skills, and arm skills, and evaluate their technical performance in freestyle swimming.

3- That the two strategies (guided exploration and brainstorming) had similar effects on creating positive thinking in kids learning freestyle swimming.

4- Demonstrating the two strategies (guided exploration and brainstorming) had similar effects on acquiring forward flow skills, leg skills, and arm skills, and assessing students' technical performance in freestyle swimming.

5.2 Recommendations:

In light of the research findings, the researcher suggests the following:

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1- Emphasize the use of guided exploration and brainstorming to improve positive thinking skills in pupils learning freestyle swimming.
2- Emphasizing the use of guided exploration and brainstorming to teach kids fundamental freestyle swimming abilities.
3- More research into how to acquire freestyle swimming skills using various modern teaching approaches is needed.
4- Conduct comparable research on other sports to discover the extent to which these two strategies help build basic abilities in other games.
5- Provide training classes for instructors to acquaint them with the most recent teaching techniques, their contents, and how to implement them in the classroom.

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Appendix No. (1)
Positive Thinking Scale
Dear respected student....

- On the following pages you will find a group of situations that a student goes through in his academic and public life, but students differ in the way they think and act towards each situation You must put a check mark ( ) in front of one of these paragraphs that you believe applies to you or represents the opinion that you believe in.

No.	Paragraph	
4	I feel that: (A) I have abilities that have not yet appeared. (B) These are my abilities and I cannot do better.	

Example:

- Answering the paragraphs requires you to be accurate and honest, because they are for scientific research purposes that require accuracy and honesty.
- Rest assured that your answer will be completely confidential and no one will see it except the researcher and you will be respected and appreciated. To increase reassurance, there is no need to mention your name on the scale.

No.	Paragraph	Answer
1	When one of my colleagues beats me in the exam, I (a) I feel frustrated and unable to surpass him. (b) I feel that I can surpass him through perseverance and effort.	
2	I always feel that: (A) I cannot face difficult circumstances during the lesson. (B) I can face them and benefit from experiences.	
3	When a teacher asks me to do something, I: (a) I do not think about the need to perform well in it. (b) I think about the need to perform at my best.	
4	I am characterized by things: (a) Many positivity. (b) Many negatives.	

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5	My fellow students describe me as: (A) A responsible and reliable person. (B) A dependent person who is not reliable.	
6	When I encounter a problem in the lesson, I: (A) I face her and try to find a solution for her. (B) I ignore it and forget it until it finds its way to a solution itself.	
7	When a teacher asks me to perform the skill in front of my colleagues, I: (A) I feel anxious and nervous about my inability to perform them properly (B) I feel confident and able to perform it properly.	
8	I am a person known to be: (A) Stubborn and do not give up while working. (B) Quick to give up when things are not well.	
9	When a teacher asks me to give my opinion, I: (A) I say my opinion openly and at all times. (B) Sometimes I don't say my opinion honestly.	
10	When I seek to befriend a student, I: (A) I don't care whether he agrees with me or disagrees with me. (B) I do not approach those who disagree with me.	
11	I feel constant: (a) Conviction on what my Lord has given me. (b) I did not receive my share of the world.	
12	Me: (a) I am able to stop myself from continuing to be angry during the lesson. (b) I can't stop myself if I get angry with anyone.	
13	My fellow students describe me as: (a) Patient. (B) I lose patience easily.	
14	I always feel: (A) Indifference if my fellow students accuse me of being selfish in the lesson (B) I get upset if my fellow students accuse me of being selfish in the lesson.	

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15	When I get angry, I: (A) I do not distinguish between right and wrong. (b) I am aware of what I am doing with full awareness.	
16	When some of my colleagues carry wrong thoughts about me, I am: (a) I work to change those ideas. (B) I do not care about it.	
17	Failure experiences represent me: (A) Lessons to draw lessons towards a better tomorrow. (B) Unhappiness and pain.	
18	I imagine that my level of performance of skills at the end of the semester: (a) It becomes much better. (b) It does not change much.	
19	I see that my fellow students: (A) Most of them are cooperative and kind. (B) Most of them are uncooperative and abusive.	
20	Competition during the lesson represents to me: (A) A positive aspect of self-realization. (B) A negative aspect that hinders the achievement of my goals.	
21	I think the way to succeed in the lesson is: (A) Seriousness and diligence. (B) Endowment on the students who are incubated.	
22	To perform the skill correctly, I: (A) I rely on my abilities and experience. (B) I rely on luck and chance.	
23	I believe that adherence to teaching guidelines: (A) Restricts the student's freedom of movement and makes the lesson boring. (B) Helps the student to learn the skill correctly.	

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Appendix (2)
A sample of a brainstorming educational unit

Brainstorming Teaching Stage: First Week Four - Unit Eight
Learning Objective: Students learn the skill of arm strokes correctly Time: 90 minutes
Date\ Sun 26/3/2023 Educational Objective: Developing Challenge and Determination Number: 15 students
Tools: float boards – education fins – swimming goggles

Sections of the Development Unit	Time One minute	Events & Skills	Profiles	Observations
Preparatory section	25 Min			
introduction	5 Min	Stand straight and perform the sports salute	⊗ **********	Performing the sports salute
General warm-up	12 Min	Give general body conditioning exercises	**********	- Emphasis on order. - Emphasis on spinal flexibility. - Emphasis on increased breathing.
Special warm-up	8 Min	Give skill-specific physical exercises	* * * * ⊗	
Main Section	60 Min			
Educational activity	30 Min			
A- Explanation of the skill	6 Min	* Skill specifications * Conditions required for correct performance * Explanation of how to perform the skill * Performing the presentation * Feedback	********** ********** ⊗	The explanation is clear to everyone and the students are in a position where everyone can see the teacher while explaining. Then the teacher performs the skill correctly.
b- Rephrasing	6 Min	The teacher gives a number of signals on how to perform correctly - How to make an appropriate distance between the arms. - How to swing the arms when performing swimming.	* * * * * * * * * ⊗	
C- Preparing the	6 Min	Skill performance training	⊗	Avoid any

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atmosphere		The teacher places several objects (from the objects suggested by the students) to help with correct performance such as placing a rope and jumping – reducing the height of the net	* * * * * * * *	criticism during performance while taking advantage of the correct performance.
Brainstorming-D	6 Min	Students select the best ideas presented. The best ideas selected by the students are implemented.		
H- Identify the strangest idea	6 Min			
Practical activity	30 Min	- Walking in the shallow area, alternating walking on the hands on the bottom of the pelvis and the body extended horizontally. - Pulling with the arms under the water from the horizontal floating position on the abdomen with the partner supporting the legs. - Pulling with the arms while interlocking the legs using the buoyancy board. - Performing arm strokes while fixing the legs. After completing the exercises, the teacher divides the students into groups to play on the net and referee with feedback from the teacher.	* * *	- Emphasis on extending the striking arm - Emphasis on the three-step approximation movement
	6 Min			
	6 Min			
	5 Min			
	8 Min			
	6 Min			
Final section	5 Min	Cool down exercises, salute and then leave.	⊗ **********	Return tools to the store.

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Follow Appendix (2)

Educational unit: Eighth
Week: Fourth
Day and date: Sunday 3/26/2023

del for an educational unit using the guided discovery method

Lesson location: Iraq Swimming Pool - Al-Qasim District

Academic stage: First

Time: 90 minutes

Educational objective: Students learn the skill of arm strikes in a correct manner

Unit Sections	Time	Events	
Organizational aspect	4 Min	Stu	
First: the preparatory section	16 Min	* Walking - trotting with the arms rotated forward and backward sequentially - raising the knees forward and backward ... Etc. * (standing) jump up with the knees pulled on the chest (1 – 2) * (Standing, opening, waisting) rotating the head to all sides successively (1-4) * (Standing, open, arms high) Bend the torso front down with lowering it in position (1-4)	- Emphasis on the system. - Students move in a warm-up in a queue. - The warm-up is comprehensive for all parts of the body - Emphasis on the most important muscle groups common in the performance of arm movements in swimming.
A – General Preparatory Section	8 Min		
B – Special Preparatory Department	8 Min		
Second: Main Section	60 Min	Asking students questions by the teacher* (Q/ How is the student's body position during the performance of arm movements). (Q: Suggest two exercises for the skill of the arms).	Questions are asked and clarified until the correct answer is found.
1- Educational Department	20 Min		
2- Applied Department	40 Min	1- Performing the skill of arm movements by the student after explaining the skill by the teacher	Errors are detected by students, self-

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		2- Performing the skill in front of the camera to photograph his performance. 3- Compare his performance with the answer to the questions posed to him by the teacher. 4- Evaluating the performance by the student and correcting the error, i.e. comparing what he performed and what was answered to the questions. 5- Perform the skill, correct the error and continue to repeat	correcting and correcting the error.
Third: Final Section	10 Min	Exercises and games to calm the body and then leave	Repeat some of the important points given in the lecture

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