

The Effect of Using Types of Discovery Method in Learning Some Basic Football Skills for Students of the Faculty of Physical Education

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Abstract: *Developing modern methods for teaching football skills that focus on learner activity and positivity helps develop these skills and accelerate the learning process, particularly by giving the learner a prominent role and enhancing student participation. Accordingly, the main objectives of the research are as follows: The effect of using different types of discovery methods (directed, semi-directed, and free) on learning some basic football skills for first-year students at the College of Physical Education, Al-Qadisiyah University. Identifying which methods are best for teaching some basic football skills for first-year students at the College of Physical Education, Al-Qadisiyah University. To achieve the research objectives, the researchers used the experimental approach using the equivalent groups method, while the research community represented the first-year students in the College of Physical Education / University of Al-Qadisiyah, numbering (100). The research sample was chosen by simple random method, numbering (21) and they were divided into three groups: Section (C) works with the directed discovery method, Section (D) with the semi-directed discovery method, and Section (E) works with the free discovery method. After that, the tests were prepared and the pre-test was conducted for the research sample members. Then the three methods were applied to*

the research groups, and then the researchers proceeded to apply the post-test. By using appropriate statistical methods to process the results to serve the research and achieve the objectives, the researchers concluded that the free discovery method is the best method for learning the skills of handling, rolling and extinguishing, followed by the semi-directed method, then the directed method, while the directed discovery method was the best method for learning the skills of scoring, followed by the semi-directed method, then the free discovery method.

Keywords: *Discovery, Method, Learning, Football*

Introduction

The educational process enables the learner to acquire appropriate responses and appropriate attitudes. The educational process is one of the most important drivers for building generations through optimal utilization of human and scientific capabilities, especially those of society's creative individuals. This is achieved by nurturing them and developing their talents according to advanced cognitive curricula that can provide the appropriate foundation for scientific outcomes that play an important role in society.

Modern educational studies emphasize the necessity of using the discovery method in teaching, as it allows students to actively participate in their learning process. Discovery

learning provides students with the opportunity to think independently and acquire knowledge on their own.

This approach takes on the hallmarks of an integrated educational approach that places the student in a position of discovery, not implementation. It confronts them with problems that require solutions, and they must plan their own solutions, design the necessary experiments, collect and classify the results, and provide an interpretation for them. Interest in football is growing in both developed and developing countries, given the game's popularity.¹ This game has been the subject of extensive research, playing a significant and fundamental role in developing players' skills. Countries are making significant efforts to provide material and moral support to advance the game for all age groups. The importance of this research lies in developing a modern educational method that raises a problem that engages students, captivates their attention, and motivates them to think and study to solve these problems and find sound solutions. This will help them arrive at the best path to this solution, as football skills require significant effort and a high level of physical and skill proficiency to perform motor tasks efficiently.² It is possible to utilize the discovery method (directed, semi-directed, free) to find solutions to perform the skill in the best possible way and with good performance. We also need to develop students' mental and creative abilities by stimulating their thinking to solve problems posed to them in the form of questions and to find and discover appropriate solutions.

Methodology

Research Objectives:

1. The effect of using different types of discovery methods (directed, semi-directed, and free) on learning some basic skills (dribbling, handling, blocking, and scoring) in soccer for first-year students at the College of Physical Education, Al-Qadisiyah University.
2. Identify which methods are best for learning some basic skills (dribbling, handling, blocking, and scoring) in soccer for first-year students at the College of Physical Education, Al-Qadisiyah University.

Research Hypotheses

1. There is a positive effect using different types of discovery methods (directed, semi-directed, and free) on learning some basic skills (dribbling, handling, blocking, and scoring) in soccer for first-year students at the College of Physical Education, Al-Qadisiyah University.
2. There are significant differences between different types of discovery methods (directed, semi-directed, and free) in learning some basic skills (dribbling, handling, blocking, and scoring) in soccer for first-year students at the College of Physical Education, Al-Qadisiyah University.

Research Areas

- Human scope: First-year students, College of Physical Education, Al-Qadisiyah University.
- Spatial scope: College of Physical Education Stadium, Al-Qadisiyah University.
- Temporal scope: From October 15, 2024 to December 15, 2024.

Research Methodology:

The researcher used the experimental method with an equivalent group design to suit the nature of the research problem.

Research Population and Sample

1. Research Population

The researcher defined his research population as first-year students from the College of Physical Education at Al-Qadisiyah University for the academic year 2024-2025, totaling (100) students distributed across (5) classes.

2. Research Sample

The research sample consisted of (21) first-year students at Al-Qadisiyah University for the academic year 2024-2025, who were selected from three classes using a simple random method (lottery). Thus, the sample percentage reached (19%) of the original population. The sample was selected and distributed according to the methods used in the research.

Table 1. shows the distribution of methods used across groups

| Groups | Number of sample members | The method used |
|---------------------|--------------------------|--|
| Group 1 (Section C) | 7 | Directed Discovery (Experiment 1) |
| Group 2 (Section D) | 7 | Semi-directed Discovery (Experiment 2) |
| Group 3 (Section E) | 7 | Semi-directed Discovery (Experiment 3) |

3. Group Homogeneity:

Homogeneity was achieved for the individuals in each group on some variables and tests (height, weight, age, skill tests, intelligence), as shown in Table (2).

Table 2. shows the values of the arithmetic means, standard deviations, and skewness coefficients for some of the homogeneity variables for the individuals in the first group

| S | Variables | Units | Mean | Std | T value | Significance |
|---|--------------|--------|--------|------|---------|--------------|
| 1 | Height | Cm | 175.04 | 5.45 | 1.77 | Homogeneous |
| 2 | Weight | Kg | 66.41 | 0.41 | 1.51 | Homogeneous |
| 3 | Age | Year | 19,7 | 4,37 | 0.26 | Homogeneous |
| 4 | Skill Tests | Degree | 2.33 | 0.35 | 1.42 | Homogeneous |
| 5 | Intelligence | Degree | 2.34 | 0.34 | 1.98 | Homogeneous |

Table 3. shows the values of the arithmetic means, standard deviations, and skewness coefficient values for some homogeneity variables for the individuals in the second group

| S | Variables | Units | Mean | Std | T value | Significance |
|---|-------------|--------|--------|------|---------|--------------|
| 1 | Height | Cm | 177.08 | 5.51 | 1.73 | Homogeneous |
| 2 | Weight | Kg | 67.52 | 0.52 | 1.57 | Homogeneous |
| 3 | Age | Year | 19,1 | 4,31 | 0.24 | Homogeneous |
| 4 | Skill Tests | Degree | 2.13 | 0.32 | 1.48 | Homogeneous |

| | | | | | | |
|---|--------------|--------|------|------|------|-------------|
| 5 | Intelligence | Degree | 2.31 | 0.31 | 1.98 | Homogeneous |
|---|--------------|--------|------|------|------|-------------|

Table 4. shows the values of the arithmetic means, standard deviations, and skewness coefficient values for some of the homogeneity variables for the individuals in the third group

| S | Variables | Units | Mean | Std | T value | Significance |
|---|--------------|--------|--------|------|---------|--------------|
| 1 | Height | Cm | 177.04 | 5.48 | 1.71 | Homogeneous |
| 2 | Weight | Kg | 65.52 | 0.51 | 1.54 | Homogeneous |
| 3 | Age | Year | 19,3 | 4,33 | 0.25 | Homogeneous |
| 4 | Skill Tests | Degree | 2.36 | 0.37 | 1.45 | Homogeneous |
| 5 | Intelligence | Degree | 2.36 | 0.37 | 1.97 | Homogeneous |

Note the values of the skewness coefficient, which is a characteristic of the normal curve. A test is considered normally distributed if the Pearson skewness coefficient ranges between (± 1). This proves the suitability of all tests for the research sample level.³

Data Collection Methods

1. Research Tools:

The researcher used the following tools to collect data:

1. Observer, personal interviews. The researcher conducted a series of personal interviews with experts and specialists, testing, and measurement.

2. Devices Used in the Research:

1. (4) Sony cameras, Stopwatch, (HP) laptop, medical device for measuring height and weight.

3. Research Methods

- A legal football field, (10) footballs, measuring tape.
- Field Research Tests.

Pilot Experiment:

The pilot experiment was conducted on October 16, 2024, on a group outside the research sample (Section F). The results of the pilot experiment were as follows:

1. The educational curriculum and tests were appropriate for the level of the sample members.
2. The support team's competence and sufficiency in implementing the educational curriculum and supervising and organizing the tests.

Main Experiment:

The main experiment was conducted on October 19, 2024. It included pretests, the educational curriculum, and posttests.

Pretests:

Pretests were conducted on October 18, 2024, on the research sample, on the skills under study, after exposing the sample members to two educational units to clarify the skills to be learned.

Educational Curriculum:

The educational curriculum was implemented on October 19, 2024, on the skills under study, according to the scientific and educational methods emphasized in the sources regarding the use of educational steps for beginners. The educational curriculum for all experimental groups included (16) educational units distributed over (8) weeks, at a rate of two units per week.

- The first experimental group (group C): which learned using the guided discovery method, the number of educational units was (16) with a duration of (90) minutes per unit. The researcher developed a curriculum specific to the guided discovery method, by preparing a set of questions directed to the student about the form of movement, with the student performing motor responses to these questions.
 - The second experimental group (group D): which learned using the semi-guided discovery method, the number of educational units was (16) with a duration of (90) minutes per unit. The researcher developed a curriculum specific to the semi-guided discovery method, by preparing a set of questions directed to the student about the parts of movement, with the student performing motor responses to these questions.
- The third experimental group (Section H): which learned using the free discovery method, as the number of educational units in it reached (16) educational units, the time of each unit being (90) minutes, at a rate of two units per week, according to the curriculum approved by the college to teach this subject with two units per week, and Table (6) shows the total time for each educational unit and the total time for the prescribed educational curriculum.

Table 6. Shows the content of the lesson sections, the time allocated for them, the total time, and the percentages of the educational unit’s activities

| Educational unit sections | Lesson activity content | Activity time during the unit | Total unit activity time | Percentage of each activity |
|---------------------------|-------------------------|-------------------------------|--------------------------|-----------------------------|
| Preparatory Section | Introduction | 5 | 80 | 5.55 |
| | General Warm-up | 5 | 80 | 5.55 |
| | Specific Warm-up | 10 | 160 | 11.11 |
| Main Section | Educational Activity | 25 | 400 | 27.77 |
| | Practical Activity | 30 | 480 | 33.33 |
| | Assessment Tests | 10 | 160 | 11.11 |
| Final section | Conclusion | 5 | 80 | 5.5 |
| Total | Introduction | 90 | 1440 | 99.92 |

Post-tests:

The post-tests were conducted on December 14, 2024, after the sample had completed the educational curriculum for each skill under study. The skill tests were photographed using the same camera that photographed the pre-skill performance. The videotaped post-tests, which included skill performance, were presented to a group of handball experts.

Statistical Methods:

The researcher used the statistical package (SPSS).

- Mean.
- Median.
- Skewness.
- Standard deviation.
- Analysis of variance for repeated measures.
- One-way analysis of variance.
- LSD test.

Result and Discussion

Presentation, analysis and discussion of results

Presentation and analysis of the results of the skill performance assessment using the (F) test for the control group (traditional method) for the pre- and post-test and retention of some types of handball shooting.

Table 7. Shows the (F) value calculated to assess skill performance in the tests (pre-, post-, and retention) for Group C.

| S | Variables | Sum of squares | df | Mean squares | Calculated value of (F) | Significance level |
|---|--|----------------|-----------|--------------|-------------------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Stand | 17.84 | 2 | 8.92 | 31.24 | 0.00 |
| | Error Limit | 9.70 | 34 | 0.28 | | |
| 2 | Performance Evaluation for Shooting from a Forward | 17.93 | 2 | 8.96 | 24.07 | 0.00 |
| | Error Limit | 12.66 | 34 | 0.37 | | |

Table 8. shows the (L.S.D) test for pre- and post-comparisons and retention between the results of the skill performance assessment for Group C.

| S | Variables | Intermediate tests | | Means | Media teams | standard error | Significance level |
|---|--|--------------------|-----------|-----------------|-------------|----------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Pivot | Pre | Post | 5.33-3.92 | 1.40 | 0.19 | 0.000 |
| | | Pre | Retention | 4.59-3.92 | 0.66 | 0.14 | 0.000 |
| | | Post | Retention | 4.59-5.33 | 0.74 | 0.19 | 0.001 |
| 2 | Performance Evaluation for Shooting from a | Pre | Post | 5.21-3.70 | 1.40 | 0.20 | 0.000 |
| | | Pre | Retention | 3.704.31 | 0.50 | 0.17 | 0.002 |
| | | Post | Retention | 5.214.31 | 0.89 | 0.23 | 0.003 |

| | | | | | | |
|--------------|--|--|--|--|--|--|
| Forward Jump | | | | | | |
|--------------|--|--|--|--|--|--|

Presentation and analysis of the results of skill performance assessment using (F) for experimental group D (guided discovery method) for the pre- and post-test and retention of some types of handball shooting.

Table 9. shows the (F) value calculated to assess skill performance in the tests (pre-, post-, and retention) for experimental group D.

| S | Variables | Sum of squares | df | Mean squares | Calculated value of (F) | Significance level |
|---|--|----------------|----|--------------|-------------------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Stand | 68.14 | 2 | 34.07 | 87.88 | 0.000 |
| | Error Limit | 13.18 | 34 | 0.38 | | |
| 2 | Performance Evaluation for Shooting from a Forward | 72.94 | 2 | 36.47 | 152.60 | 0.000 |
| | Error Limit | 13.06 | 34 | 0.38 | | |

Table 10. shows the (L.S.D) test for pre- and post-comparisons and retention between the results of the skill performance evaluation for the experimental group D.

| S | Variables | Intermediate tests | | Means | Media teams | standard error | Significance level |
|---|---|--------------------|-----------|---------------|-------------|----------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Pivot | Pre | Post | -3.83 6.40 | 2.57 | 0.19 | 0.000 |
| | | Pre | Retention | -3.83 5.96 | 2.12 | 0.20 | 0.000 |
| | | Post | Retention | -6.40 5.96 | 0.44 | 0.21 | 0.055 |
| 2 | Performance Evaluation for Shooting from a Forward Jump | Pre | Post | -3.61 6.24 | 2.63 | 0.12 | 0.000 |
| | | Pre | Retention | -3.61 5.87 | 2.25 | 0.24 | 0.000 |
| | | Post | Retention | -6.24 5.87 | 0.37 | 0.22 | 0.119 |

Presentation, analysis, and discussion of the results of the skill performance evaluation using (F) for the experimental group and the (semi-directed discovery method) for the pre- and post-tests and retention of some types of handball shooting.

Table 11. shows the (F) value calculated to evaluate skill performance in the tests (pre-, post-, and retention) for the experimental group W

| S | Variables | Sum of squares | df | Mean squares | Calculated value of (F) | Significance level |
|---|--|----------------|----|--------------|-------------------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Stand | 157.27 | 2 | 78.63 | 317.12 | 0.000 |
| | Error Limit | 8.43 | 34 | 0.24 | | |
| 2 | Performance Evaluation for Shooting from a Forward | 168.35 | 2 | 84.17 | 220.32 | 0.000 |
| | Error Limit | 12.99 | 34 | 0.38 | | |

Table 12. shows the (L.S.D) test for pre- and post-comparisons and retention between the results of the skill performance evaluation for the second experimental group.

| S | Variables | Intermediate tests | Means | Media teams | standard error | Significance level |
|---|---|--------------------|----------|-------------|----------------|--------------------|
| 1 | Performance Evaluation for Shooting from a Pivot | re Post | -3.87 | - | 0. | 0.0 |
| | | re Retention | 7.62 | 3.75 | 12 | 0.0 |
| | | ost Retention | 7.33-387 | 3.46 | 19 | 0.0 |
| 2 | Performance Evaluation for Shooting from a Forward Jump | re Post | 7.627.33 | 0 | 0. | 0.1 |
| | | re Retention | 7.466.98 | 3.96 | 14 | 0.0 |
| | | ost Retention | 7.466.98 | 3.48 | 20 | 0.0 |
| | | | | .29 | 17 | 0.04 |
| | | | | .48 | 2 | 0.79 |

Presentation and analysis of the results of the skill performance evaluation using (F) for the three groups in the post-test for some types of handball shooting.

Table 13. shows the (F) value calculated to evaluate the skill performance of the post-test among the three groups in some types of handball shooting.

| Variables | Source of variance | Sum of squares | df | Median square | Significance level |
|-----------|--------------------|----------------|----|---------------|--------------------|
|-----------|--------------------|----------------|----|---------------|--------------------|

| | | | | | | | | |
|---|----------------|---|------|---|------|------|----|-----|
| Performance Evaluation for Shooting from a Pivot | Between groups | 4 | 7.52 | 2 | 3.76 | 6.96 | 00 | 0.0 |
| | Within groups | 1 | 8.09 | 1 | 0. | | | |
| | Total | 6 | 5.61 | 3 | 35 | | | |
| Performance Evaluation for Shooting from a Forward Jump | Between groups | 4 | 9.80 | 2 | 4.90 | 4.98 | 00 | 0.0 |
| | Within groups | 1 | 9.54 | 1 | 0. | | | |
| | Total | 6 | 9.35 | 3 | 38 | | | |

Table 14. shows the (L.S.D) for comparisons in assessing skill performance between the three groups for the post-test in some types of handball shooting.

| Variables | Intermediate tests | Means | Media teams | Standard error | Significance level | |
|---|--------------------|--------------|---------------|----------------|--------------------|-----------|
| Performance Evaluation for Shooting from a Pivot | Control | Experiment 1 | 5 6.40-.33 | - 1.07 | 0. 19 | 0.00 0 |
| | Control | Experiment 2 | 5 7.62-.33 | - 2.29 | | 0.00 0 |
| | Experiment 1 | Experiment 2 | 6 7.62-.40 | - 1.22 | | 0.00 0 |
| Performance Evaluation for Shooting from a Forward Jump | Control | Experiment 1 | 5 6.24-.21 | - 1.03 | 0. 20 | 0.00 0 |
| | Control | Experiment 2 | 5 7.46-.21 | - 2.25 | | 0.00 0 |
| | Experiment 1 | Experiment 2 | 6 7.46-.24 | - 1.23 | | 0.00 0 |

Discussion

In light of the extracted data, as shown in Tables (7) (F) and (8) (L.S.D), which show the differences in the pre- and post-tests and retention in the types of shooting (shooting from the pivot, shooting from a forward jump, shooting from a fall) for the control group in

evaluating the skill performance and the pre- and post-skill tests and retention in favor of the post-tests, this explains to us that the method followed by the teacher led to learning the skills in a positive way. The researcher attributes the reason to the fact that the sample is from the second-stage students who did not practice handball skills from any of the raw samples, as well as the teacher's use of the subject for the best teaching methods, as they are experienced and specialized in teaching handball skills. It is clear that the learner acquired the skill through the subject teacher who follows his own method and a specific style, as it is preferable that teaching in the educational stages be entrusted to the best learners. The researcher also attributes the learning achieved in the skill performance and skill tests as a result of training and the effectiveness of the skills used in the educational methods, "as learning is a group of processes related to training that lead to relatively stable changes in Performance Ability".⁴ Shooting in handball is considered a difficult skill that requires breaking down the skill into parts. The teaching method used by the teacher aims to break down the skill into parts when learning. The educational method generally follows increases individual responsibility by emphasizing the parts of the skill until the skill is successfully completed. From the same data in the tables above, and in light of the extracted data, which shows differences in the post-tests and retention in the four shooting types for the control group, significant differences were found in the shooting types in favor of the post-tests. The researcher attributes this to the number of educational units prepared by the curriculum used by the subject teacher and the teacher's field experience in this subject in terms of how to impart these skills.⁵

In light of the extracted data, as shown in Tables (9) (F) and (10) (L.S.D), which show the differences in the pre- and post-tests and retention in the types of shooting (shooting from the pivot, shooting from the forward jump) for the first experimental group (guided discovery method) in evaluating the pre- and post-skill performance and retention in favor of the post-test, this explains to us that the guided discovery method is one of the modern methods that is somewhat in line with the requirements of the development taking place in the sports field, as it is considered useful in teaching handball skills to beginner students.⁶ It is one of the methods that depend on the relationship between the student and the teacher, which emphasizes making the student the focus of the educational process by giving him the opportunity to make some decisions related to the educational process resulting from his participation with the teacher during the process of asking questions by the teacher and thinking and giving the answer by the learner. Therefore, this partnership in the discovery process depends mainly on the combination of the teacher's experience that appears through his formulation of questions related to the skill to be learned.⁷ In addition, the researcher attributes the reason for the development that has taken place to the specificity of the skills. The nature of the study and what distinguishes these skills from special features that differ from one skill to another despite the interconnectedness of these skills and their sequence during play on the one hand and on the other hand the harmony of the specificity of each skill with the method of directed discovery and directed discovery "is an indirect method in teaching that depends on the teacher directing his students to participate in the

learning process by throwing a group of students in the correct direction for motor performance using in that some mental processes and previous experiences” .⁸

In light of the extracted data, as shown in Tables (11) (F) and (12) (L.S.D), which show the differences in the pre- and post-tests and retention in the types of shooting (shooting from the support, shooting from the forward jump) in favor of the second experimental group (semi-directed discovery method) in evaluating the skill performance before and after and retention in favor of the post-test, the researcher attributes this to the effectiveness of the educational method used and built on scientific foundations, as this method contributed to developing the improvement of skill performance and skill tests through training, repetition and practice, because training is one of the basic laws in learning. Training and practice on a specific skill within a motor duty leads to increased experience and development in mental and physical ability, as training is one of the factors that improve the ability to perform skills.⁹ This explains to us that learning with this method is done by preparing the educational situation and providing the learner with stimuli that push him to respond by preparing a list of questions related to parts of the skill from the skills under study, and these questions are considered a stimulus that pushes the learner to Answering these questions through movement, as this method works to stimulate the students’ motivation to discover the details of the movement parts in the minutes through the students’ love for this aspect of the lesson. It is known that “the students’ tendency to discover is like the tendency of all people in this field.”¹⁰

From Tables (13) (F) and (14) (L.S.D), it is clear that there are significant differences between (the control group, the first experimental group, and the second experimental group) in the post-test, in favor of the second experimental group (semi-directed discovery).¹¹ The researcher attributes the reason for the difference in the level of evaluation of skill performance in the control group compared to the level of the first experimental group (directed discovery) and the second experimental group (semi-directed discovery) in the post-tests for each of the skills (shooting from the pivot,¹² shooting from a forward jump) to the educational method used, as the first experimental group learned using the directed discovery method and the second experimental group using the semi-directed discovery method, which depicts a state of development in the educational unit that differs by using this method from the educational unit in which the method used by the teacher is used. Although the method used by the teacher,¹³ according to which the control group learned, is useful in teaching handball skills to beginner students, it places the learner under the control of the teacher, as the teacher is often in complete control of the entire lesson or most of its time. The researcher attributes the reason for the superiority of the two experimental groups over the control group.¹⁴ The control in the post-test indicated the effectiveness of the approach used in the guided discovery method, which left the students with complete freedom in performing the assigned motor task, i.e. giving the student the opportunity to try motor solutions multiple times until he reaches the best solution through experimentation, and this helped to increase the actual performance of the learner. The guided discovery method also encouraged repetitions of performing these skills by presenting questions and receiving responses about the presented skill, as the student was

given the appropriate time to practice and repeat in order to ensure reaching mastery of the performance or skill, as the skill is “a characteristic indicative of the effectiveness of performance”.¹⁵

Conclusion

1. The two types of discovery methods, directed and semi-directed, had a positive impact on learning some types of shooting.
2. Learning using the semi-directed discovery method is better than learning using the directed discovery method for learning some types of shooting (shooting from the support and shooting from the forward jump).
3. Retention using the directed discovery and semi-directed discovery methods is better than the method used by the teacher for some types of shooting (shooting from the support and shooting from the forward jump).

Recommendations

1. The application of the two methods of directed discovery as scientific methods in teaching some types of shooting (shooting from the pivot and shooting from the forward jump).
2. Through the application of various discovery methods, it is possible to formulate appropriate educational steps for students, based on the students' readiness and available capabilities.
3. The necessity of the physical education teacher's familiarity with more than one teaching method and using the best method for the appropriate educational situation.
4. Conduct studies on directed discovery methods and various sports (individual and team).
5. The necessity of developing a semi-directed discovery method used in the research, emphasizing its effectiveness in achieving the lesson objectives.

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