



## Article

# The Effectiveness of Using Problem-Solving Strategies in Learning the Skills of Simple Deception and Shooting in Handball for Students

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**Abstract:** This study explores the effectiveness of a problem-solving strategy in teaching the skills of simple deception and handball shooting to first-year students at the Faculty of Physical Education and Sports Sciences during the 2023-2024 academic year. Given the growing emphasis on innovative teaching methods, integrating research-based learning strategies can enhance students' practical and cognitive skills. However, the impact of such strategies on motor skill acquisition remains underexplored. The study employed an experimental design with control and experimental groups, using pre- and post-measurements to evaluate performance. Results revealed a significant improvement in the experimental group, demonstrating that involving students in problem-solving tasks enhances motor skills, self-confidence, and overall learning outcomes. These findings underscore the importance of active learning strategies in sports education curricula.

**Keywords:** Problem-solving, Simple deception, Correction skills, Handball

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## 1. Introduction

Since handball is simple and its educational and physical value cannot be ignored, this game is one of the beloved games in the hearts of young people because the continuous and mutual struggle to obtain the ball attracts boys and girls to this game. The foundations and technical skills of handball are simple; the ball is caught and thrown, which are two basic elements of the game movements that students have often known a long time ago (Jasim et al., 2022).

The diversity in the use of different methods and strategies for teaching works to raise the boredom of students resulting from the use of one method, and the successful teacher is the one who makes the learner move from negative situations to positive attitudes and participation to develop thinking and reveal self-abilities and contribute to solving problems and the use of repetitions and appropriate self-feedback (Rashid & Abdulrazziq, 2022).

In light of this development and change in curricula and teaching methods, the role of the teacher was not limited to transferring knowledge to students only, but went beyond that to become one of his roles and basic meals to develop students' ability to think and innovate and involve them in the educational process, so the problem-solving strategy is positive for the student by involving him in solving meaningful problems and this is done

by giving him an active role in the learning process to provide him with educational experiences with a desirable impact on his behavior and learns Students in physical education through planned experiences to solve the motor problem and how to control many of the movements that move by his body where he forms his movement within the limits of the problem in ways with a past lead to satisfying his desire for the successful use of his body and improve his self-confidence and gradient teacher in the design of the problem motor appropriate skills from the design of one problem to the design of a series of problems(KHALID Abdulrazzaq, n.d.).

This strategy represents the individual's ability to think using what he has learned and gained from previous experiences, knowledge, and skills to use in a new document that he has not previously experienced(O. A. Ali, 2022). This response is directly towards work that requires solving a dilemma or deciphering the ambiguity that exists within the situation, where the dilemma may be the result of the lack of real and effective interdependence among them or the presence of a malfunction or defect in its components(Abdul Razzaq, 2023).

Handball is a successful way to educate students to think and act collectively. The players are forced during play to think about the self-interest of their team in the framework of being an integrated team according to the game's law. The skills of deception and correction are one of the most important skills to score goals, as these skills express their applied training as the backbone of the game, as the skill of correction represents the boundary between winning and losing and the final movement of all skill and tactical efforts that were used for the arrival of the player To the mode of shooting, deception is one of the most important effective offensive skills in dismantling and weakening the hardest types of defence for teams and players(Adham Ali et al., 2022).

From here, the importance of research appears through the use of problem-solving strategy, which is one of the modern teaching methods and methods, because of its great importance in the life of the learner, and increasing the level of his achievement of science, and the fact that the game of handball works on the formation of personality, as it develops in its player's willpower, courage, determination, determination and decision-making ability, in particular, Researchers used problem-solving strategy in learning skills that serve the handball player in general and the skills of deception and correction in particular.

The researchers noted through the performance of students in the handball lesson when learning basic skills, including deception and correction, that there is fluctuation and poor performance that can be due to individual differences between learners that can be addressed using the appropriate strategy or method followed by the teacher during practical lessons, as the use of proper and good educational strategies depends in their application on the mutual relations between the coach and the player, and will reflect a certain educational behavior, and each strategy and method has goals and applications and must To be consistent with the level of the learner, the academic stage, the age and appropriateness of the effectiveness or skill required, so the researchers decided to find the best strategies that the learner can reach the ideal performance, through the use of problem-solving strategy when learning the skills of deception and shooting handball, which provides the learner with abilities that help him to know and analyze problems into several main and sub-parts, And increase the accuracy of research to collect information and propose solutions and ensure the effectiveness of these solutions and then make a decision towards the best solution for him, and end up with general provisions related to solving the studied problem, and then work to generalize solutions to other educational situations.

### Research Objectives:

1. Identify the extent to which the problem-solving strategy affects learning the skills of simple deception and correction.
2. Preparing developmental educational units that include a problem-solving strategy to develop the skills of deception and handball correction.

### Research hypotheses:

1. There is a clear effect of using a problem-solving strategy in learning the skills of simple deception and correction.
2. There are statistically significant differences between the pre-and post-measurement in favour of the post-measurement among the members of the experimental and control groups on all study variables.
3. There are statistically significant differences between the members of the experimental and control groups in favour of the experimental group members in the dimensional measurement of all study variables.

## 2. Materials and Methods

### Research Methodology:

The researchers used the experimental approach by designing the two equivalent groups to be the most appropriate and closest to solving the research problem and achieving its goals(O. Ali et al., 2024). Research population and sample: The research community represented - students of the second stage: College of Physical Education - Anbar University, numbering (62) students, and the basic sample included (20) students who were selected randomly (lottery) and were divided into (10) students for the control group, which was taught in a teacher's style, and (10) students for the experimental group, which applied to the problem-solving strategy, and (4) students were used to conduct exploratory studies for research from the same research community.

Homogeneity of the research sample: In order to adjust the research variables that affect the accuracy of the results and identify the validity of the sample and the distribution of values of its variables moderately, the researcher used some statistical means (arithmetic mean, standard deviation, mode, torsion coefficient)(Saeed, Sabti, et al., 2024) to verify the homogeneity of the research sample in the variables mentioned (height, mass and age) as shown in the table.

Table 1. Shows the homogeneity of the research sample

| Variables         | Unit of measurement | Arithmetic mean | Broker | Standard deviation | Torsion coefficient | Total  |
|-------------------|---------------------|-----------------|--------|--------------------|---------------------|--------|
| Length            | cm                  | 171.75          | 170    | 1.892              | 0.391               | Smooth |
| Body mass         | kg                  | 70.813          | 69.5   | 1.663              | 0.355               | Smooth |
| Chronological age | year                | 19.8            | 19     | 0.722              | 0.223               | Smooth |

Means of data collection: To achieve the objectives of the research and obtain accurate and correct results, the researcher has used the following means and devices(Al-Alwani & Ali, 2023): Arab and foreign references and sources. Questionnaire (forms for experts and specialists) Observation. Tests and measurement. Devices and tools used: Tape measure. Cameras. Computer. CDs. Camera cushions. Take notes. Handball hall. Handballs (10).

### **Field Procedures for Research:**

Description of the tests:

First / simple deception skill test with handball (Salem, 2016)

Test name: Perform the skill of simple deception.

Purpose of testing: Knowing the level of technical performance of experts who have made simple deceptions.

Tools: Sony camera, two handballs, defender (negative), legal handball court.

Performance specifications: The distance between the defender and the student laboratory is determined by (1.20 m), and the student is a simple and recognised deception process by taking three steps, the first opposite of the aiming arm and the other towards the aiming arm and the last complement to the technical performance, during this performance, the student is photographed laboratory and presented to three experts and given to the laboratory (3) performances.

Evaluation: The evaluation of the performance of the laboratory in its three attempts according to the opinions of the evaluators, noting that the final evaluation degree is of (10) degrees, and the division of the degree is as follows: the preparatory part (3) degrees), the main part (5) degrees, the final part (2) degrees.

Second / handball shooting test: (Al-Khayyat & Al-Hayali, 2000)

The purpose of the test is to check the accuracy of the correction of stability.

Tools: handballs, (4) squares drawn in the goal, each (40x40) cm. How to perform:

The student stands behind the 7 m throw line, holding the ball

When the signal is given, the student shoots at the square (A), then (B), then (C), then (D). The performance repeats the Rules:

Take into account the stability of one of the player's feet and do not move them during the performance of the throw.

The ball is played within (3 seconds from the start of hearing the signal).

Sign up:

A score is calculated for each correction inside the designated box.

A zero is calculated for correction if the player commits a legal violation, such as moving his second foot.

Shooting within (3) seconds of hearing the signal.

Exploratory Experience: In order for the researcher to obtain objective results, he experimented with testing the skills of simple deception and correction on Sunday, 15/9/2024, on a sample of (6) students from the study community, students of the second stage.

### **Main experience:**

The educational units of the experimental groups and the control group were prepared and applied from 16/9/2024 until 16/10/2024. The subject teacher applied the experiment and used the problem-solving method, and the control group used the usual method by the subject teacher. The application of the experiment took (4) weeks by two educational units per week; that is, the educational program was applied in (8) educational units, where the time taken for each educational unit was (90) minutes. The researchers have prepared a set of questions, and the answers to them in a probability manner are several alternatives.

Moreover, this method is implemented in the main section, where the teacher begins to explain the skill in the educational aspect presented to the teacher. A set of exercises is applied that helps students learn the skill on the applied side, as the teacher asks questions prepared for students in the style of solving problems verbally with giving alternatives,

and students choose manifold solutions. Choosing alternatives. The teacher participates in giving feedback For students while answering questions, and after completing the questions, students apply exercises prepared for the skill according to their answers to the questions.

#### Post-tests:

After completing the application of the educational units and for the purpose of identifying the level reached by the students, the dimensional measurements were made on the members of the experimental and control research groups (for the skills under research) on Thursday, 17/10/2024 under the direct supervision of the researcher. He was keen to create the conditions and specifications of the pre-tests themselves in order to stay away from the variables that may affect the results of the tests.

#### Statistical Methods:

The researcher used the ready-made program in the statistical bag (spss) in statistical treatments(O. A. Ali et al., 2022).

### 3. Results

#### Presentation and discussion of the results of the pre-and post-tests of the control group:

Table 2. Shows the results of the tests of the control research group.

|                  | Unit of measurement | Pre-test        |                    | Post-Test       |                    | Value (v) Calculated | Test significance level Sig | Indication Type |
|------------------|---------------------|-----------------|--------------------|-----------------|--------------------|----------------------|-----------------------------|-----------------|
|                  |                     | Arithmetic mean | standard deviation | Arithmetic mean | standard deviation |                      |                             |                 |
| Simple deception | degree              | 3.63            | 0.991              | 5.22            | 0.921              | 3.124                | 0.006                       | Moral           |
| Correction       | degree              | 3.51            | 0.833              | 5.45            | 0.898              | 3.221                | 0.002                       | Moral           |

#### Presentation and discussion of the results of the pre-and post-tests of the control group:

Table 3. Shows the results of the tests of the experimental research group

|                  | Unit of measurement | Pre-test        |                    | Post-Test       |                    | Value (v) Calculated | Test significance level Sig | Indication Type |
|------------------|---------------------|-----------------|--------------------|-----------------|--------------------|----------------------|-----------------------------|-----------------|
|                  |                     | Arithmetic mean | standard deviation | Arithmetic mean | standard deviation |                      |                             |                 |
| Simple deception | degree              | 3.82            | 0.918              | 7.12            | 0.934              | 5.034                | 0.000                       | Moral           |
| Correction       | degree              | 3.62            | 0.966              | 7.19            | 0.922              | 6.161                | 0.000                       | Moral           |

### Presentation and discussion of the results of the post-tests of the control and experimental groups:

Table 4. Shows the results of the post-tests of the control and experimental research groups

|                  | Unit of measurement | Post-test (control group) |                    | Post-test (experimental group) |                    | Value (v)<br>Calculated | Test significance level Sig | Indication Type |
|------------------|---------------------|---------------------------|--------------------|--------------------------------|--------------------|-------------------------|-----------------------------|-----------------|
|                  |                     | Arithmetic mean           | standard deviation | Arithmetic mean                | standard deviation |                         |                             |                 |
| Simple deception | degree              | 5.22                      | 0.921              | 7.12                           | 0.934              | 4.034                   | 0.000                       | Moral           |
| Correction       | degree              | 5.45                      | 0.898              | 7.19                           | 0.922              | 4.113                   | 0.000                       | Moral           |

#### 4. Discussion

From the results shown in Table (2), it is clear that there are statistically significant differences between the pre-and post-tests of the control group and in favour of the post-tests in the results of handball tests (simple deception and correction). Clarity and specificity of goals in concrete forms of behaviour or levels of performance are of great importance and effectiveness. (Hamid, 2002) The teacher manages all his organizations, follows up the student's performance and provides him with direct feedback, so the traditional method used by the teacher had a great impact on the test results, and this corresponds to the method of implementing the performance of these skills, in addition to that the teacher followed a certain method that led to excellent results in the post-tests and this is a clear indication of the results provided.

The researcher believes that this development in the results of the tests is the control group, which learned according to the traditional method, which is the most common for Physical education teachers and therefore called the traditional way in which the student is the performer and the teacher only is the focus of work and this work does not come with satisfactory results consistent with the level desired by the student and the teacher and does not take into account the individual differences between the student and this is what he pointed out (Nawal and Mohsen: 2008) The disadvantages of the traditional method is that it does not take into account the individual differences between the possibilities of learners. (N. Ibrahim & Mohamed, 2008)

The results presented in Table (3) for the tests of my skills (simple deception, correction test) handball for students showed that there are statistically significant differences between the pre-and post-tests and in favour of the post-tests of the experimental group. The researchers are likely to progress to the positive impact of the educational unit using the problem-solving strategy prepared by the researchers, which was characterised by the presentation of the idea and the diversity of educational vocabulary and stimuli, which has motivated students to collect and interpret information. This contributed to providing students with an integrated mental vision, which helped to develop their thinking, and this reflected positively on their answers to the questions posed by the teacher.

This is in line with Magdy Aziz (2005) pointing out that it is possible to activate students' scientific thinking skills by developing related teaching strategies, such as forming, building and understanding information, in addition to defining thinking procedures related to the topic at hand especially when the teacher provides an



introduction that provokes students' thinking and develops their ability to derive information. (M. A. Ibrahim, 2005) The researchers also suggest the reason for learning to the effectiveness of the problem-solving strategy that put the learner in an educational position that contributed to organizing the cognitive structure, and reorganizing ideas by linking the cognitive structure and motor behavior through the investment of information and knowledge in the practical application of basic handball skills that require transitional and kinetic speed and spatial accuracy according to the tests and this link to control the appropriate speed and accuracy to achieve the goal of the skill shown by the results of the tests, which had the role of using the problem-solving strategy and its content, which gave The role of evaluation after performance, which helped to support the process of retrieval of ideas and information in the achievement of motor duty (Saeed, Khalaf, et al., 2024), as (Wajih) confirms that "the availability of information about the skill will develop the ability to learn motor skills more than those who did not have extensive information before training" (Mahjoub, 2001).

## 5. Conclusion

The findings of this study demonstrate that the problem-solving strategy significantly enhances students' performance in learning basic handball skills, particularly simple deception and aiming. The experimental group outperformed the control group, indicating that involving students actively in the learning process fosters better motor skill acquisition and self-confidence. These results highlight the pedagogical value of integrating learner-centered strategies into sports education curricula. The study underscores the need for continuous exploration of innovative teaching methods to improve skill development in physical education. Future research should expand the scope by applying similar approaches to diverse sports contexts, larger samples, and longitudinal studies to validate and extend the current findings.

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