



The effect of problem solving strategy on learning the skills of sending and receiving volleyball for female students

Samar Radi Bishara¹ , Zain Al , Abidin Haidar Ali²

Shatra University 1 , 2
summer@shu.edu.iq¹ , zain@shu.edu.iq²

Article history:

Received: 22/ 2 / 2025

Received in revised from: 11/ 3 / 2025

Published online: 11/4/ 2025

Keywords:

problem solving ,
volleyball ,
students ,

Corresponding Author :

009647814062899

ABSTRACT

The importance of research is evident in harmony with the requirements and modern directives for education that call for renewal in teaching strategies, and the current study came to select among the many teaching strategies problem-solving strategy, which researchers believe has a noticeable impact on the progress of the level of learning faster and learning my skills (transmitter and transmitter reception) and saving time and effort, either the goal of the research is Identifying the impact of the problem-solving strategy in learning the skills of sending and receiving the volleyball transmitter for female students, and the research sample was selected represented by the students of the second stage of Al Ain University - College of Physical Education and Sports Sciences, Dhi Qar Governorate - for the academic year 2022-2023, and the researcher used the experimental approach with experimental and control groups and the most important conclusions were The superiority of the experimental group that implemented the educational curriculum according to the problem-solving strategy on the control group that implemented the educational curriculum according to the teacher's method in learning the skills of sending and receiving the volleyball transmitter for students, and the researcher recommended conducting similar studies dealing with the strategy of solving problems at age stages not addressed by the current study for male and female students

1- Definition of research

1.1 Introduction and importance of the research

Education represents the main and important pillars in the progress of peoples and nations, so nations seek to develop it and exert maximum efforts in it, and looking at education in general, we find that it depends in many of its stages on traditional education, in which the greatest burden falls on the shoulders of the teacher, and the role of the learner is largely negative, so many institutions seek to develop and improve education using New strategies for education, aimed at the learner to be active, effective and productive, and the role of the teacher is a guide and guide, so a lot of educational developments have emerged recently , the aim of which is to make the learner the focus of the educational process instead of the teacher, and focus on effective active learning strategies.

In recent years, several modern philosophies have emerged.

The basis for a number of strategies used in teaching, and these philosophies are constructivist philosophy, from which several diverse strategies and methods are derived, and several diverse educational models are based on the pattern of building knowledge and the steps of its acquisition, including the constructivist learning model based on the philosophy of constructivist thought, and constructivism focuses on the learner and his activity during the learning process, and emphasizes meaningful learning based on understanding, through the active role and active participation of students in the activities they perform, In order to build their concepts and scientific knowledge.

One of these strategies, the problem-solving strategy , which is one of the modern educational strategies, and one of the most important effective learning strategies that include the existence of a problem and finding appropriate solutions to it, as it helps in organizing the education process in a way that allows the learner to form his own cognitive structure, through educational situations that provoke his thinking, and motivate him to make an intentional activity to compare between previous knowledge and new knowledge in learning situations, and by helping him

to obtain appropriate information To reach a solution to the issue at hand while expanding the knowledge gained through training on applications associated with his new knowledge, thus reshaping the cognitive structure of the learner and his learning becomes meaningful.

The game of volleyball is one of the games that consist of several basic skills, which the teacher is required to teach and deliver to learners in the best ways and develop them well in order to raise their skill performance and obtain the best results required, and this is through the use of strategies, methods and methods appropriate and appropriate to achieve them , which are consistent or consistent with the nature and tendencies of learners and their desires, and bring them to a level of mastery and high rank of efficiency and effectiveness to reach the goals to be achieved, hence the importance of research in the application of the problem-solving strategy , which the researcher believes that it has a positive impact on the learning process, and this in turn leads to the advancement of the level of learning faster in learning the skills of sending and receiving volleyball transmitter for students.

1.2 Research problem

Through the work of the researcher and her observation of most of the physical education lessons in the college, she noticed that the classroom environment in the college is an encouraging and unexciting environment for students to learn and obtain the desired results, as some teachers rely on teaching skills.

Multiple volleyball on traditional strategies and methods based on the usual methods, where the teacher is a decision-maker and students only have to perform and implement according to the orders issued by the teacher , as the researcher noted that the basic skills of volleyball do not develop in a way that is commensurate with the rapid development of the game, the adoption of teachers On learning strategies and methods that depend on the teacher and make the role of the learner a negative future for information, and the absence of interaction and vital activity between the learner and the teacher may be one of the reasons that led to the decline in learning for most learners or

this is due to the lack of use of strategies, methods or methods commensurate with the large number of learners, which increases the burden of the educational process on the teacher, which prompted the researcher to employ Problem-solving strategy, hoping to make a positive change in learning the skills of sending and receiving volleyball transmitter for students and mastering them to reach the best level, as well as the researcher's desire to provide a modest scientific addition to the lack of research that dealt with these topics.

1.3 Research objectives

- 1- Identify the impact of problem-solving strategy in learning the skills of sending and receiving volleyball for students.
- 2- Identifying the significance of the differences between the pre- and post-tests of the two groups in learning the skills of sending and receiving volleyball for female students
- 3- Identifying the significance of the differences between the two research groups (control and experimental) in the results of the post-tests in the skills of sending and receiving the transmission of volleyball for female students.

1.4 Research hypothesis

- 1- The existence of significant statistical differences between the results of the pre- and post-tests of the control and experimental groups in learning the skills of sending and receiving the transmission of volleyball for students and in favor of the post-tests.
- 2- The existence of significant statistical differences between the results of the post-tests of the control and experimental groups in learning the skills of sending and receiving the transmitter by volleyball for students and for the benefit of the experimental group.

1.5 Research areas

- 1-5-1 Human field: Students of the second stage, Al Ain University / College of Physical Education and Sports Sciences - Al-Rifai District - Dhi Qar Governorate for the academic year 2022/2023.
- 1.5.2 Time Domain: from 19/11/ 2022 to 16/1/2023 .

1.5.3 Spatial field: Stadium Faculty of Physical Education and Sports Sciences

1.6 Definition of terms

1.6.1 Problem-solving strategy: "It is an intellectual process in which the individual uses his previous acquired knowledge and skills in order to respond to the requirements of a situation that is not familiar to him, and the response is to direct action aimed at resolving the contradiction, confusion or ambiguity contained in the situation (Al-Buhairi, 2001, p. 34)

2- Research methodology and field procedures

2.1 Research Methodology

The researcher used the experimental approach with two equivalent groups (control and experimental) to suit the nature of this study and its objectives.

2.2 Research community and sample

The researcher has identified the research community with the students of the second stage of the College of Physical Education and Sports Sciences, Al Ain University - Dhi Qar Governorate - for the academic year 2022 AD - 2023 AD, and their number is (95) male and female students distributed over (3) divisions are (A, B, C), and after conducting homogeneity and equivalence, the researcher conducted her field experiment on a sample consisting of (30) students representing a division (a) By (15) female students, and the percentage of the sample from the original population is equal to (34.48%);

In a random way by lottery method was chosen Division (A) as an experimental group to implement the problem-solving strategy, and Division (B) control group implements the method used by the subject teacher, while Division (C) has been conducted by the researcher experiment exploratory, and excluded the researcher a number of members of the sample are students failing and students practicing volleyball.

2.3 Homogeneity and equivalence of the sample

The researcher conducted homogeneity and equivalence of the research sample using the coefficient of variation and test (t) for the associated samples

*** Moral at the level of significance $< (0.05)$ and in front of the degree of freedom (28).**

It is clear through Table (2) that the value of (t) calculated for all research variables with a level of significance greater than (0.05), which indicates the existence of non-significant differences, and this means that the two groups are equivalent in the research variables.

2.4 Means of collecting information

2.4.1 Means of data collection

Arab and foreign sources - Internet - Tests and measurement

2.4.2 Tools and devices used

DELL Laptop - Tape Measure - Medical Scale - Whistle - Electronic Stop Watch - Football - Nylon Signs - Burke

2.5 Identify some basic volleyball skills and determine the test for each skill under study

The basic skills of volleyball subject of study were determined according to the vocabulary of the curriculum prescribed for the aforementioned college system for the academic year 2022-2023, and the basic skills are (transmitter - reception), then the research required conducting tests for each skill under study, which was

Selected by utilizing the literature and sources of studies

The previous was presented to a number of experienced and specialized people and interested in this aspect (*) and obtained their approval by 100%, and this is what achieves the apparent honesty of the tests, and despite the use of tests in the Arab and Iraqi environment and that their scientific transactions are verified and reliable.

2.6 Test Specifications

2-6-1 Test transmitter from below (Al-Dulaimi, 2015, pp. 85-86)

The purpose of the test / measurement of the accuracy of the transmission from below.

Tools / ten volleyballs, legal volleyball court, number of points awarded on the targeted areas.

Performance Specifications / The tester performs five consecutive attempts from the bottom trying to direct the ball to the area in which the highest score is written,

Conditions /

- 1- Each laboratory has five attempts in which the transmission is used from below
- 2- Points are calculated according to the fall of the ball in the specified area of the field so that the tester obtains the score inside the area where the ball fell.
- 3- If the ball touches the net or goes out of the field, the laboratory gets (zero)
- 4- If the ball falls on the line, it is calculated as if it fell in the area determined by this line, and if it falls on a line common to two regions, the laboratory is given the score contained in the area with the highest grades.

Registration / The laboratory shall register the grades obtained in the five attempts it has made, noting that the final score is 25 degrees.

Reception skill test: (already mentioned, pp. 95, 96) **2-6-2**

Purpose of the test / measurement of reception capacity.

Tools / legal volleyball court, volleyball.

Performance specifications / The rear attack area is divided into a rectangle measuring 9×3 m and in turn is divided into two parts, each section measuring (4.5 ×3) m becomes there are two rectangles measuring each (4.5×3) m called each (A, B).

- The player performs (5 attempts) from within each area (A, B).
- A table can be placed in the position of (2) and a player stands above it (as a goal).

Sign up/

- (3) Degrees of the ball that is received and directed to the goal.

(2) Two degrees of the ball in contact with the target.

(zero) for the ball far from the goal.

General Guidelines: - The attempt is considered a failure if the ball falls outside the circles.

- In the event that the ball falls on the circle line, the next degree is given according to the sequence of circles (5,3,1) degrees.

2-7 Exploratory Experiment The exploratory experiment was conducted on Monday 21/11/2022 on a sample of non-research sample and from the original community, namely (15) students from Division (A) to verify the stability of the tests through the application and re-application of tests, as well as to ensure their objectivity by setting two arbitrators to record the scores of the tests and then find the correlation coefficient between them, and the correlation coefficients were high, which achieves stability and objectivity

2.8 Field research procedures

2.8.1 Pre-tests

The researcher conducted the pre-tests on the main research sample on Tuesday, 29/11/2022 AD in the stadium of the College of Physical Education and Sports Sciences / Al Ain University - Dhi Qar Governorate and in the presence of the assistant work team, and the researcher proved almost all other conditions for the tests in terms of place, time and method so that the same or similar conditions can be found when conducting the post-tests.

2.8.2 Main experience

After the researcher identified all the requirements of the main experiment by determining the skill tests and after conducting the exploratory experiment and benefiting from it in organizing work and preparing for the main experiment and before conducting the pre-tests, the researcher gave an introductory educational unit for each of the research groups for the purpose of giving prior education to students to identify the nature of the skills to be learned as well as to achieve

The objectives that require the researcher to build the educational situations that the learners in the experimental group will experience during the implementation of the problem-solving strategy and the study of the workplace, devices and tools used within the framework of the strategy under research.

- The researcher met with the students of the experimental group, and in the presence of the subject teacher before starting to apply the experiment to explain and clarify how to implement the work of the group and all inquiries of the students' questions were answered.
- **The** problem-solving strategy was implemented by the physical education teacher in the college after questioning the researcher, the objectives of the research and how the experimental group works, under the direct supervision of the researcher.
- The main experiment began on Thursday , 1/12/2022 .
- The researcher adopted the skilled educational curriculum prepared by the physical education teacher according to the vocabulary of the volleyball curriculum in the college.
- The number of educational units during the educational curriculum (8) educational units distributed over two skilled (transmitter, reception) and by two educational units per week for each division .
- The time of the educational unit (90) minutes divided as follows:
 - A - Preparatory section** (15) minutes (warm-up, and organization of work).
 - B - Main section** (65) minutes: includes the educational part (25) minutes in which the teacher of the subject explains the skill that is taught and put a set of pictures of solutions to apply that skill and asks students to choose the best solutions while giving them time to think (5) minutes to search for the problem and develop appropriate solutions to that problem or questions posed by the teacher As well as the exercises that will be applied, the applied part (40) minutes in which the selected solutions are applied with the repetition of application and the application of exercises for the skill to be taught, as each group applies the exercises according to the method that follows according to the objective of the study.

The experimental group implements the exercises for the skill to be taught according to the problem-solving strategy , as the researcher divided the experimental group students into three small groups, each group includes (5) students, taking into account the exchange of roles among them during the same educational unit, meaning that the student passes all the roles during the one motor duty, the duration of each exercise (7) Minutes.

C - The final section (10) minutes and includes (light jog and small game and then leave).

2.8.3 Post-tests

The post-tests were applied on Monday , 16/1/2023 AD, and the researcher followed the same conditions and procedures of the pre-tests in terms of time and place of conducting the tests, the assistant work team, and the method of calculating the test score.

2.9 Statistical Methods

The researcher used the statistical program (SPSS) to extract the statistical results according to the following statistical laws: arithmetic mean - standard deviation - coefficient of variation - simple correlation coefficient (Pearson) - (t) for symmetrical samples - (t) for independent samples.

3. Presentation, analysis and discussion of results

3-1 Presentation of the results of the tests of the skills of transmitter and receiver volleyball in the pre- and post-measurements of the control and experimental groups, analysis and discussion:

*** Moral at the level of significance \leq (0.05) and in front of the degree of freedom (14).**

Table (4) shows the arithmetic means, standard deviations and the value of (t) calculated between the results of the pre- and post-tests in the skills of sending and receiving volleyball for the control and experimental groups , as the results presented in the table showed that the value of the level of significance calculated in the tests for the two groups is less than the value of the

significance level (0.05), which indicates the existence of significant differences.

Significant statistics between the pre- and post-tests and in favor of the post-tests of the two groups .

The researcher attributes these moral differences and development and in favor of the post-tests in the skills of sending and receiving volleyball under research in the two groups to the educational curriculum that was applied to the control and experimental groups, whether through the method used by the subject teacher or the problem-solving strategy, in the method used in which the student learns Through imitation and repetition, the majority of its implementers focus on giving the student the largest number of repetitions in order to reach a good level of learning, continuous training on the educational task helps a lot in learning and fixing it, and this in turn contributes to mastering the motor duty as Wajih Mahjoub points out that the importance of repeating skill performance and using kinetic models in front of learners helps to learn and install the skill (Mahjoub, 2000, p. 37) as "practice and effort training and continuous repetitions are necessary in the process of education and training And achieve the best level, as it is considered an auxiliary and necessary factor in the process of the individual's interaction with the skill, control his movements, and achieve consistency between the movements that make up the skill in a proper sequential performance and an appropriate time.(Aziz, Anwar: 1990, p. 118)

As for the development that took place in the experimental group, the researchers attribute it to the positive impact of the educational curriculum using the problem-solving strategy , as the problem-solving strategy is characterized by contributing significantly to increasing the amount of information and knowledge that has been acquired by the student, as the information has been organized logically sequentially from the general to the private, which led to increased comprehension, and departure from the traditional familiar in Organizing the content of volleyball, as well as in the teaching method, where the concepts of the

subject of the course were arranged in an organized, gradual and coherent manner by developing many pictures of appropriate solutions when explaining and allowing students to choose the best of those solutions and apply them , which made it easier for students to clarify their meaning and absorb them, so they were distinguished by their high level of achievement and performance through their participation in solving the problems that were required of them, and this is what he referred to Dawood Al-Rubaie that it "makes the learner a practitioner of a new role in which he is active and organizer of his experiences. In which the student has a big role in using a variety of methods

to reach the solution by stimulating his thinking and imagination and training him to solve the problems he faces." (Qatami: 2013, p. 250)

3-2 Presentation of the results of the post-tests in the skills of sending and receiving volleyball for students under research for the control and experimental research groups, analysis and discussion

*** Moral at the level of significance $\leq (0.05)$ and in front of the degree of freedom (28).**

The arithmetic media, standard deviations and the value of (t) calculated between the results of the post-tests in the skills of sending and receiving volleyball for students for the control and experimental groups, as the results presented in the table showed that the value of the level of significance calculated in the skill tests is less than the value of the significance level (0.05), which indicates that there are statistically significant differences between the post-tests of the two groups and in favor of the experimental group.

The researcher attributes the reason for the superiority of the experimental group is due to the effectiveness of the problem-solving strategy and its constructive philosophy, which is one of their advantages to help increase the learner's motivation

towards the skill due to the positive interaction between the learner and his peers on the one hand and between the learner and the skill technique and the teacher on the other hand, and this is the opposite of the method used that is concerned with the educational material (stages of technical performance of the skill) and gives them priority, and confirms in this regard Essam and Hani that learning according to this philosophy Gives better opportunities for the learner to actively participate in the educational process

As learners show enthusiasm and motivation towards work to learn (Essam, Hani: 2011, p. 43)

The importance of the problem-solving strategy lies in the fact that it is one of the "valuable strategies in addressing educational and life experiences, hence the importance of learning and training students on them.... In it, the student has a major role in using various methods to reach the solution by stimulating his thinking and imagination and training him to solve the problems he faces. As for the educator, he plays the role of guidance and guidance and gives students the opportunity and sufficient time to solve the problem and not interfere with their opinions.... It depends mainly on the student's sense of the problem and then identifying it and working to find appropriate solutions according to his own thinking and opinions." .

4. Conclusions and recommendations

4.1 Conclusions

- 1- The problem-solving strategy and the method used by the teacher have a positive role in learning the skills of sending and receiving in volleyball for students.
- 2- The superiority of the experimental group that implemented the educational curriculum according to the problem-solving strategy on the control group, which implemented the curriculum according to the method used in learning the skills of sending and receiving volleyball for students.
- 3- The problem-solving strategy is one of the effective strategies in learning the skills of sending and receiving volleyball for students.

4.2 Recommendations

- 1- The need to apply the educational curriculum with a problem-solving strategy in learning the skills of sending and receiving volleyball for female students.
- 2- Emphasizing the development of positive attitudes of teachers , towards the use of various teaching strategies, including the problem-solving strategy , for the positive results it achieves.
- 3- Emphasizing various teaching strategies, including the problem-solving strategy because of its great importance in learning some basic skills in volleyball for students.
- 4- Conducting similar studies on other individual or team sports and age groups not addressed by the current study for male and female students

References :

- Beheiry Al-Sayed: **Creative Thinking Skills in Problem Solving**, 1st Edition: (Kingdom of Saudi Arabia, 2001).
- Nahida Abd Zaid Al-Dulaimi and others: **Modern volleyball and its specialized requirements**, 1st Edition, Beirut, Dar Al-Kutub Al-Ilmiyya, 2015, pp. 85-86.
- Wajih Mahjoub: **Kinetic Analysis**, 2nd Edition, (Baghdad, Informed Higher Education, 2000).
- Hanna Aziz and Abdul Reda Anwar: **Educational Research Methods** , Baghdad, Dar Al-Hikma for Printing and Publishing, 1990.
- Youssef Qatami: **Cognitive Education and Education Strategies**, 1st Edition, Amman, Dar Al-Masirah for Publishing, Distribution and Printing, 2013.
- Essam and Hani: **Volleyball Plans** , Sports Library for Publishing and Distribution, 2011.