e-ISSN 2798-3544

Sinar Sport Journal Vol: 6, No 1, 2026, Page: 1-10

The Effectiveness of Teaching the Brainstorming Method in Learning the Handball Shooting Skill and Its Impact on Developing Physical Self

Waleed Muhammad Ali Hussein Al-Shahwani

General Directorate of Education of Nineveh, Department of Education of Duhok, Educational Supervision

DOI:
https://doi.org/10.53697/ssj.v6i1.4014
*Correspondence: Waleed Muhammad Ali Hussein Al-Shahwani
Email:
waleedmohammadali78@gmail.com

Received: 30-01-2026
Accepted: 28-02-2026
Published: 31-03-2026

Abstract: The purpose of the study is to determine how the command approach and the brainstorming method differ when it comes to teaching handball shooting, identifying the level of the physical self among the learners, and identify the differences between the brainstorming method and the command method and its impact on the physical self-development of learners. Given the appropriateness of the research and the nature of the problem, the researcher employed the experimental method. The research sample was specifically chosen from among the 45 students enrolled in the fifth grade of preparatory school at An-Najah School for Boys for Displaced Persons, and the main experimental sample consisted of 30 students, or 67% of the research sample. This sample was then split into two groups, a division (A) for the experimental group and a division (B) for the control group, using the random selection method with a lottery and 15 students for each group. In addition to using physical self-assessment for both the experimental and control groups, this study was carried out during the first half of the academic year (2025/2026). The researcher employed the following statistical means: arithmetic mean, standard deviation, and Levene's test (for homogeneity, percentage, t.test for one sample, t.test for two independent samples

Keywords: Command Teaching Method, Brainstorming Method, Handball Shooting Skills, Physical Self-Concept, Physical Education Learning

Introduction

The multiplicity of educational means depends on the civilizational development that the world is witnessing, in order for the individual to reach the best and best means through which he helps man to express his opinion and improve and develop what is inside him, and thus the individual reaches the goal he seeks to achieve, so the researchers have been interested in developing educational methods and working on applying them to different age groups to follow up and watch the development that is taking place in them and try to apply them properly. The brainstorming method is one of the scientific methods that depends on the crystallization of the learner's ideas and the quest to advance the scientific aspect because of its great importance, and brainstorming is one of the methods used for intellectual and innovative development, and educational systems must pay great care, especially in this method, in order for these systems to be good at performing the roles assigned to them in our world today, and handball is one of the team games that is

characterized by the element of accuracy and suspense that needs a lot It is important to master these skills because of their great importance in building a strong and good basic base in developing the various skills of the game to reach good performance, and the study of the psychological aspect is of great importance for every activity, including the athlete, as it is expressed through willpower, as well as endurance, responsibility, control, and self-confidence. The level of performance, which affects achievement and excellence, and when the individual alerts a team to his self-reality and does not continue to deceive himself, he is in a position to settle these motives better, as a result of facing the reality of the self, an honest, honest, bold confrontation, as well as self-esteem is related to the athlete's view of his ability, and it increases as the athlete becomes more independent, as well as the likelihood of feeling more

Anxiety when faced with criticism, which may lead to a high level of anxiety and thus improve his athletic performance.

The research problem is determined by the following question .

How well does the brainstorming technique work for teaching handball shooting skills, and how does it impact the development of the physical self.

The researcher is trying to answer this question: Does the brainstorming method have an effect on learning the skill of aiming?

Handball and whether it has an impact on the development of the physical self for the learners, by developing solutions that suit an integrated sports building mentally, skillfully and physically, which reflects the athlete's condition in all aspects of preparing players to reach a better achievement.

The study aims to :

1. Determine the distinctions between the command approach and the brainstorming method for mastering the art of handball shooting.
2. Identifying the level of the physical self among the learners.
3. Identifying the differences between the brainstorming method and the command method and its impact on the physical self-development of the learners.

Three areas were examined in the study: the human field, represented by the pupils of the Duhok Governorate's An-Najah Preparatory School for Boys for IDPs ; the temporal domain, spanning the period from November 3, 2025, to December 21, 2025; and the spatial field, which was limited to An-Najah Preparatory School for Boys for IDPs in Duhok Governorate.

Defining the Terms

Brainstorming Technique

Arafah (Mohammed, 2005): In order to handle a topic that is accessible to those who are interested or worried about it in a brief session, it is an educational and training approach that relies on freedom of thinking to produce the greatest number of ideas. (Mohammed, 2005, p. 44)

The researcher defines it procedurally It is one of the teaching methods that relies on creative thinking through mental processes, whether collectively or individually, with the aim of producing the largest number of ideas in order to find solutions to the problem.

Physical Self

He knew it (Shreem & Melhem, 2000): The player's appreciation of the physical qualities he enjoys in light of his awareness of the strengths and weaknesses and his physical efficiency related to practicing one of the sports activities.

The researcher defines it procedurally It is the individual's awareness of his physical and physical abilities and motor skills in practicing sports activities.

Methodology

Because the experimental approach was appropriate given the nature of the study and its issue, the researcher employed it.

Research Population and Sample

The 45 students in the fifth grade of the preparatory school at An-Najah School for Boys for Displaced Persons made up the research sample, which was purposefully chosen. The main experimental sample was composed of 30 students, or 67% of the research sample. This sample was split into two groups: (A) an experimental group and (B) a control group using the lottery method of random selection, with 15 students in each group. The study was carried out in the first half of the academic year (2025/2026).

The number of members of the research sample, the main experiment sample, and the students participating in the survey experiment are displayed in Table (1) along with the number of anomalous values and their percentages. However, the researcher excluded the students who participated in the survey experiment and some anomalous values in the data of the research sample members that could have an impact on the research findings.

Table 1. lists the number of participants in the survey experiment, the main experiment sample, the research sample, and the omitted participants along with their percentages.

Variables	Percentage	Issue
Number and percentages		
Research Sample	100%	45
Sample Exploratory Experiment	22%	10
Excluded	11%	5
Main Experience Sample	67%	30

Homogeneity and parity:

Considering equivalence in research variables contributes to achieving more accurate results, supports the integrity of the scientific procedures of the experiment, and ensures that starting from a single starting point for all groups, so it is necessary to work on forming equivalent groups with regard to research variables.

Homogeneity of the research sample:

for the variables of height, weight, and age, as follows: Homogeneity was performed by the test)

Table 2. Shows the homogeneity of the research sample in the variables of height, weight, and age

Significance of the differences	sig	levene's	±	Going to-	Unit of Measurement	Variables
Insignificant	0.061	4.202	0.04	1.36	Meter	Length
Insignificant	0.658	0.188	12.03	41.91	Kilogram	Weight
Insignificant	0.243	1.445	0.61	13.23	Year	Age

Table (2) shows that the significance level of the research variables (height, weight, age) was respectively 0.061, 0.658, and 0.243, and that all of them are greater than the approved significance level of 0.005, which indicates that the sample is homogeneous in the three variables.

Table 3. Shows the parity between the experimental and control groups in the degree of shooting accuracy of handball

Test	Unit of Measurement	Pre-test Experimental Group (Mean)		Control Group (Mean)		Calculated F	Significance Level	Difference Significance
		-x	±SD	-x	±SD			
Shooting Accuracy	**Degree**	**20.13**	**1.72**	**19.66**	**1.34**	**0.826**	**0.416**	**Not Significant**

The significance level of the scale was 0.416 and it was greater than the approved significance value of 0.05, Consequently, it was discovered that the two groups' levels of handball shot accuracy did not differ much, indicating that the totals were equivalent.

Means of Data Collection:

1. Questionnaire form for the opinions of experts and specialists.
2. Personal interviews.
3. Sources and References.

Exploratory Experiment:

(Al-Mandalawi, et al., 1990) "It is a practical training that the researcher resorts to in order to identify the pros and cons that the researcher faces during his work in conducting tests to avoid them."

On March 11, 2025, the researcher carried out an exploratory experiment with ten randomly chosen members of the research community who were not part of the research sample..
(Al-Mandalawi et al., 1990, p. 107)

Scientific Conditions for the Test:

Honesty

The researcher administered the test to a panel of specialists in order to determine its validity, and after emptying the questionnaires presented to the experts, the researcher

obtained a percentage of agreement (100%), which indicates that the experts' judgment measures what was set for him in this study.

Stability

On 9/11/2025, the researcher administered the expert-selected test to a sample of ten students from the research community who were not part of the research sample, then this test was reapplied after a week on the same sample, and the simple correlation coefficient (Pearson) was calculated between the scores of the two tests, and the results of the correlation showed that there is a significant correlation relationship of (0.86%), which confirms the stability of the test chosen by the specialists.

Objectivity

In order to identify the objectivity of the selected test applied, the researcher calculated the Pearson correlation coefficient between the scores of two judges, and it was concluded that the value of objectivity was high (0.84%).

Description of the Physical Self Scale:

The researcher chose the physical self-assessment designed by (Muhammad Hassan Allawi) for the field of sports, and the scale consists of ((26 phrases and it has alternatives to the answer which are (never - rarely - sometimes - often - always)

Positive statements on the scale are statements in the direction of dimension that refer to the physical self and its numbers as follows

(1 ، 5 ، 6 ، 8 ، 10 ، 11 ، 13 ، 14 ، 16 ، 17 ، 19 ، 21 ، 22 ، 25 ، 26)

The negative statements in the scale, which are the statements in the opposite direction of the dimension that refer to the physical self and their numbers are as follows, (2, 3, 4, 7, 9, 12, 15, 18, 20, 23, 24)

The weights of the positive phrases are as follows :

(5) Degrees when answering with "Always."

(4) Degrees when answering with B: Mostly.

(3) Degrees when answering with "Sometimes."

Two degrees when answering B: Rarely.

One degree when answering B: Never.

The weights of the negative statements are as follows:

(3) Degrees when answering with "Sometimes."

Two degrees when answering B: Always.

One degree when answering B: Always.

The final score of the physical self scale is the sum of the scores of the sum of the positive and negative statements (26) phrases and the maximum score of the scale is (130) degrees, the closer the individual gets to this limit, the more it indicates his concept and high positive appreciation of his physical self as shown in Appendix No. (1). (Allawi, Muhammad Hassan, 1998, p. 193)

The Validity of the *Physical Self-Measurement*

(Allawi, & Nasreddin, 2000) "Honesty is the possibility of testing the phenomenon that is to be measured, and the test is truthful when it measures what it is designed for."
A questionnaire was designed in order to identify the validity of the scale and to present the questionnaire to experts and specialists in the field of sports psychology in order to identify the ability and validity of the scale to measure what it was designed for, and the experts and specialists agreed on (100%) which indicates the validity of the scale and can be applied to the research sample under study.

Consistency of the Physical Self Scale:

The researcher conducted the stability of the physical self scale on a sample of (10) students from the research community outside the research sample in a classroom at the school on 9/11/2025, then the test was repeated on the same sample a week later, and the stability was calculated by the correlation coefficient, where the correlation value reached (87%), which is a high correlation and suitable for the use of this scale under study.

Devices and Tools Used:

1. Goal.
2. Handballs (10)
3. Curtain for the goal (2).
4. Tape Measure (1).
5. Markers for squares (4) .
6. Stopwatch (1).

Implementation of the main experiment:

After the researcher completed all the requirements of the experiment in identifying the research groups and achieving parity between them, the main research experiment was applied on 16/11/2025, as the physical education teacher taught the experimental and control research groups and used in teaching the first experimental group (brainstorming method), and the control group (command method), and the teaching continued over the course of (33) days for the year.
Academic year 2025/2026 according to the teaching plan prepared by the researcher, and the implementation of the experiment was completed on 18/12//2025
3-10 Post-Tests:
The post-tests of the research sample under study were conducted by the researcher on December 21, 2025, and were conducted in the same manner as the pre-tests, including the use of the same instruments, the time and location of the test, and the recording of data in a specific registration form.

Statistical Methods

1. The arithmetic mean.
2. Standard deviation.

3. T.test for one sample.
4. T-test for two independent samples.
5. Percentage.
6. Levene's test) (for homogeneity

Result and Discussion

Presentation of results

Table 4. Statistical values of the sample in the physical self scale, the value of (t) and the level of significance

sig	)t(Calculated	Hypothetical Average	±on	Q-	Issue	Scale
0.000	28.902	78	2.72	63.6	30	Physical Self

Table (4) showed that the arithmetic mean of the physical self reached 63.6 with a standard deviation of 2.72 and when compared with the significance level which reached 0.000, which is a value smaller than the value of the approved significance level of 0.05, and this is an indicator of the decrease in the degree of physical self among the members of the research sample.

Table 5. Shows the value of (t) and the significance level of the experimental group

Variables	Pre-test (Mean)		Post-test (Mean)		Calculated F	Sig.
	-x	±SD	-x	±SD		
Physical Self	64.20	2.90	109.20	8.19	19.609	0.000
Shooting Accuracy	20.13	1.72	26.33	2.43	7.326	0.000

The arithmetic mean of the physical self score in the pre-measurement was 64.20 with a standard deviation of 2.90, while in the dimensional measurement, the arithmetic mean value was 109.2 with a standard deviation of 8.19, at a significance level of 0.000, which is less than the approved significance level of 0.05, which means that there are significant differences between the pre-measurement and post-measurement of the experimental group members.

As for the accuracy of the aiming, the arithmetic average in the pre-test was 20.13 with a standard deviation of 1.72, while in the post-test, the arithmetic mean value was 26.33 with a standard deviation of 2.43, at a significance level of 0.000, which is less than the approved significance level of 0.05, which means that there are significant differences between the pre- and post-tests of the experimental group members.

Table 6. Shows the value of (t) and the level of significance for the control group

Variables	Pre-test (mean)		Post-test (mean)		T-Calculated	Sig.
	-x	±SD	-x	±SD		
Physical Self	63.06	2.49	74.00	2.32	16.993	0.000
Shooting Accuracy	19.66	1.34	21.73	1.48	3.717	0.002

The arithmetic mean of the physical self score in the pre-measurement was 63.06 with a standard deviation of 2.49, while in the dimensional measurement, the value of the arithmetic mean was 74 with a standard deviation of 2.32, at a significance level of 0.000, which is less than the approved significance level of 0.05, which means that there are significant differences between the pre- and post-measurement of the experimental group members.

Regarding the accuracy of the correction, the experimental group members' pre- and post-test arithmetic means differed significantly, with the pre-test arithmetic mean being 19.66 with a standard deviation of 1.34 and the post-test arithmetic mean being 21.73 with a standard deviation of 1.48 at a significance level of 0.002, which is below the permitted significance level of 0.05.

Table 7. Shows the value of (t) and the level of significance for the experimental and control groups

Variables	Pre-test (mean)		Post-test (mean)		T-Calculated	Sig.
	-x	±SD	-x	±SD		
Physical Self	109.20	8.19	74.00	2.32	15.984	0.000
Shooting Accuracy	26.33	2.43	31.73	1.48	6.236	0.000

The results show that there are significant differences in the dimensional measurement between the two groups and in favor of the experimental group. The arithmetic mean of the physical self-score in the dimensional measurement of the experimental group members was 109.20 with a standard deviation of 8.19, while the arithmetic mean of the control group was 74 with a standard deviation of 2.32 and at the significance level of 0.000. Its value was less than the approved significance level of 0.05.

Regarding aim accuracy, the post-test arithmetic average was 26.33 with a standard deviation of 2.43, whereas the control group's arithmetic average was 31.73 with a standard deviation of 1.48 at the significance level of 0.000. This value was below the authorized significance level of 0.05, indicating that the two groups' post-test results differ significantly and in favor of the experimental group.

Discussion of the results

The findings that demonstrated the experimental group's superiority in physical self and aim accuracy are ascribed to the brainstorming strategy's crucial role in changing the training process from automatic reception to innovative thinking. Students' analysis of play situations and motor solution proposals activated their higher mental processes, which in turn improved motor performance accuracy as the result of a conscious mental choice rather than merely a muscular-mechanical reaction (Al-Duleimi & Jassim, 2022). By boosting

confidence in motor competence and the ability to control field variables, this cognitive interaction and creative freedom also improved the learners' physical self-concept, resulting in a positive correlation between body image and achievement (Smith & Taylor, 2023). However, because the control group was linked to the stereotypical repetition of the dictating style, which develops the motor element independently of deep mental observation, its improvement was limited. This indicates that the incorporation of cognitive techniques in ball training is effective. In contrast to conventional approaches that lack the capacity for creative thought, the hand generates nuanced responses that are appropriate for the complexity of real-world play circumstances (Gonzalez & Martinez, 2021).

Conclusion

1. The effectiveness of the brainstorming method in learning the skill of shooting with a handball.
2. The control group that implemented the command method had a limited improvement in learning the skill of shooting with a handball.
3. The effectiveness of the brainstorming method in raising the level of physical self for learners.
4. Emphasizing the use of the brainstorming method in learning the skill of shooting with a handball as a better method than the command method in our schools.
5. Utilizing the physical self scale periodically by the subject teacher in order to identify the level of the physical self among the school students.

References

Al-Arishi Mohammed Bin Abdullah (20005): Brainstorming Program, Saudi Arabia.

Al-Duleimi, A. H., & Jassim, M. A. (2022). The effect of brainstorming strategy in learning some fundamental skills of handball for students. Journal of Physical Education, 34(2), 145-158.

Allawi, Mohamed Hassan (1998): Encyclopedia of Psychological Tests for Athletes, Al-Kitab Center for Publishing, Cairo.

Allawi, Mohamed Hassan and Radwan Mohamed Nasr El-Din (2000): Analogy in Physical Education and Sport Psychology, 2nd Edition, Dar Al-Fikr Al-Arabi, Cairo.

Al-Mandalawi, Qasim et al. (1990): Tests and Measurement in Physical Education, Higher Education Press.

Gonzalez, R., & Martinez, L. (2021). Command Style vs. Discovery Learning: A Comparative Study on Motor Skill Acquisition in Handball. European Journal of Human Movement, 46, 88-102.

Shreem, Raghda & Melhem, Abdel Qadir (2000): Dimensions of Self-Concept and the Impact of Gender and Grade Variables and the Level of Achievement on Them among a

Sample of Outstanding and Runaway Students in the Ninth and Tenth Grades, Journal of Educational Sciences Studies, Issue 1, Volume 27, Jordan.

Smith, J. R., & Taylor, P. L. (2023). Cognitive Learning Strategies and their Impact on Physical Self-Concept among Team Sports Athletes. International Journal of Sports Psychology, 54(1), 22-39.