



## Information Article

## The Impact of Cooperative Pedagogy on Flow State Induction and Volleyball Setting Skill Mastery Among Specialized Academy Athletes

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| ARTICLE INFO                                                                                                                           | ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p><b>Keywords:</b><br/>Cooperative Learning-Based Instructional Units, Flow State (Psychological Flow), Volleyball Setting Skill.</p> | <p>This study aims to design instructional units based on the cooperative learning approach, implement them with players from the Specialized Sports School in Al-Rumaitha, and investigate their effect on fostering psychological flow and learning the volleyball setting (overhead pass) skill.</p> <p>To achieve these objectives, the researcher employed a two-group (experimental and control) pretest-posttest experimental design. The research population comprised players from the Specialized Sports School for the (2025–2026) sports season (N = 24), who were randomly allocated via lottery into two equal groups of (n = 12) players each.</p> <p>The researcher constructed a psychological flow scale and established a volleyball setting skill test battery. An introductory orientation session was conducted to familiarize the participants with setting mechanics, as it represented a novel motor skill. Following baseline pre-testing, the cooperative instructional intervention was implemented over a 3-week period at a rate of two sessions per week, totaling six instructional units. The instructional portion utilized a command style for skill demonstration, whereas the practical execution phase divided the experimental group into three small sub-groups where learners alternated between the roles of executor and peer-guide. Following the intervention, post-tests were administered, and data were statistically analyzed using SPSS.</p> <p>The findings revealed that the cooperative learning-based instructional units played a significant role in enhancing psychological flow and facilitating the acquisition of the volleyball setting skill, with the experimental group demonstrating statistically significant superiority over the control group across all measured variables.</p> |

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## 1. Introduction

Societies flourish through the advanced scientific contributions, creative developments, and innovations provided by scientists, alongside all educational requirements that enable learners to achieve optimal learning levels across diverse scientific, social, humanitarian, and sports disciplines.

Accordingly, the scientific dimension of sports specialization has advanced remarkably due to progress in sports science. Among the sports sciences that have played a major and vital role in advancing the learning of various athletic activities is teaching/learning methodology, which represents an essential field given its focus on the novice age base for acquiring sports-related knowledge and sciences through diverse scientific approaches.

Cooperative learning possesses characteristics that distinguish it from other instructional and lesson management styles, as it does not rely entirely on the instructor. Key features of this approach include training learners in cooperation and idea exchange, emphasizing respect for the opinions of others, expressing viewpoints, and avoiding individualistic decision-making. Furthermore, this interaction facilitates the development of personal, social, and motor skills through the exchange of instructional roles within the working group or groups, where students share collective responsibility for achieving learning outcomes.

Volleyball is considered one of the primary and essential athletic activities, whose performance requires acquiring a variety of skills ranging from basic to advanced. These skills are interdependent, and mastering foundational techniques constitutes a critical factor in achieving competitive success. Among these skills is setting, which represents a fundamental task for constructing attacks and scoring points.

The game of volleyball demands high instructional techniques in identifying teaching methods and aids for acquiring required skills and movements; thus, the cooperative approach plays a significant role in advancing various sports disciplines.

An increase in intrinsic drive during training and competition, coupled with the learner's sense of enjoyment derived from positive flow experiences during sports participation, represents what an athlete strives to achieve to reach elite performance levels. Athletes desire the continuation and recurrence of such states; therefore, the instructor's focus on psychological factors contributing to the emergence of flow and working to reinforce them reflects positively on excellence and innovation in the practiced activity.

Hence, the research significance lies in applying the cooperative learning style in an attempt by the researcher to enable specialized sports school athletes to achieve high levels of setting skill proficiency and psychological flow.

### Research Problem

The research problem is addressed through the following questions:

- Do instructional units based on the cooperative learning style contribute to developing psychological flow and learning the volleyball setting skill among specialized sports school players?
- Is there a difference in effect between the exercises designed by the researcher and traditional exercises in developing psychological flow and learning the volleyball setting skill among specialized sports school players?





## Research Objectives

1. To identify the effect of instructional units based on the cooperative learning style on developing psychological flow and learning the volleyball setting skill among specialized sports school players.
2. To identify the differences between the exercises designed by the researcher and traditional exercises in their effect on developing psychological flow and learning the volleyball setting skill among specialized sports school players.

## Research Hypotheses

1. Instructional units based on the cooperative learning style have a positive effect on developing psychological flow and learning the volleyball setting skill among specialized sports school players.
2. Significant differences exist between the exercises designed by the researcher and traditional exercises regarding their effect on developing psychological flow and learning the volleyball setting skill among specialized sports school players.

## Research Scope

- **Human Scope:** Specialized volleyball sports school players in Al-Rumaitha aged 12–14 years.
- **Temporal Scope:** From January 11, 2026, to February 22, 2026.
- **Spatial Scope:** Al-Gharbi Youth Forum in Al-Rumaitha, Martyr Mohammed Ali Al-Hassani Hall.

## 2. Research Methodology and Field Procedures

### 2.1 Research Method

The researcher employed the experimental method using a two-group design (control and experimental groups).

### 2.2 Research Population

The researcher identified the study population as specialized sports school players in Al-Rumaitha for the 2025–2026 athletic season, totaling 24 students. The participants were randomly assigned via lottery into two equal groups of 12 players each.

### 2.3 Data Collection Instruments

The researcher utilized the psychological flow scale and the volleyball setting skill test as data collection tools.

### 2.4 Equipment and Tools Used

Questionnaire, stationery, HP laptop, volleyballs, volleyball court, adhesive tape, iron stand, basketball hoop.

### 2.5 Description of Research Tests

#### 1. Psychological Flow Scale

The researcher employed the psychological flow scale developed by Nassima Abbas Saleh (2024), consisting of 38 items scored on a 5-point Likert scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree) with values from 1 to 5. Total scale scores range from 38 to 190 points.

#### 2. Volleyball Setting Skill Test (Zainab Lazem Abdul Razzaq, 2023)

- **Objective:** To measure overhead passing (setting) accuracy.
- **Equipment:** Volleyball court, regulation-height net, volleyballs, multi-colored adhesive tape, 2 m high iron stand, basketball hoop (65 cm diameter).
- **Test Procedures:** Two squares (A, B), each with a diameter of 1.5 m, are drawn in the court corners, located 1 m from the sideline and 1.5 m from the endline. The stand is placed near the center of the net at a distance of 2 m from the net. An

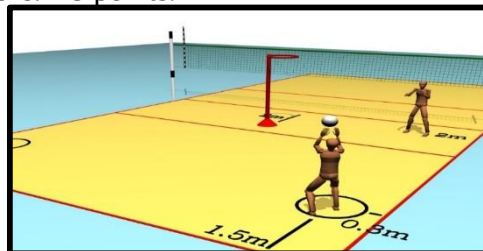




(X) mark is placed 2 m from the sideline designated for the instructor's standing position. The instructor throws the ball in an upward arc toward the participant standing in the designated circle (right then left successively), who sets the ball toward the hoop to fall through it.

- **Scoring System:**

- The participant is granted 6 attempts (3 attempts from each circle).
- 3points: Direct entry into the hoop without touching the rim.
- 2points: Ball enters the hoop after touching the rim.
- 1point: Ball touches the rim without entering.
- 0points: Deviant performance/missed attempt.
- Maximum possible score: 18 points.



*Figure 1. Overhead passing (setting) accuracy test from zones 1 and 5.*

## 2.6 Pilot Study

The researcher conducted a pilot study of the research tests to ensure the validity of the form and testing protocols on Sunday, January 29, 2026, on specialized sports school players at the Al-Gharbi Youth Forum in Al-Rumaitha (Martyr Mohammed Ali Al-Hassani Hall), and the trial achieved its intended objectives.

## 2.7 Main Experiment

### 2.7.1 Introductory Units

The researchers delivered an introductory orientation unit to familiarize players with the volleyball setting skill, as it was previously unfamiliar and considered a novel skill for the participants. This was conducted on Sunday, February 1, 2026.

### 2.7.2 Pre-testing

The researcher administered pre-tests to the study sample on Monday, February 2, 2026, at 2:30 PM at the Al-Gharbi Youth Forum in Al-Rumaitha (Martyr Mohammed Ali Al-Hassani Hall). The psychological flow questionnaire was distributed first, followed by testing the participants in the volleyball setting skill. All temporal, spatial, and procedural parameters were documented for replication during post-testing.

### 2.7.3 Implementation Plan of Cooperative Instructional Units

The researcher initiated the application of instructional units from Tuesday, February 3, 2026, through Wednesday, February 18, 2026. The instructional intervention included the following:

- Total intervention duration: 3 weeks, at 2 instructional units per week.
- Total number of instructional units: 6 units.
- Units were implemented during the main part of the lesson for 60 minutes, divided into an instructional/educational segment (15 minutes) and an applied/practical segment (45 minutes).
- In the instructional segment, the skill was explained using the command style. In the applied segment, experimental group players were divided into 3 small



subgroups where players practiced while peers assumed the guiding/monitoring role.

- Exercise progression followed the principle of gradual difficulty from simple to complex, incorporating varied skill drills to prevent monotony and enhance learner engagement.

#### 2.7.4 Post-testing

Following the completion of the cooperative instructional units, the researcher conducted post-tests on the specialized volleyball sports school players in Al-Rumaitha following the same sequence used in pre-testing. This took place on Thursday, February 19, 2026, at 2:30 PM at the Al-Gharbi Youth Forum in Al-Rumaitha (Martyr Mohammed Ali Al-Hassani Hall).

#### 2.8 Statistical Analysis

The researcher used the statistical package SPSS v27.1.

### 3. Results, Analysis, and Discussion

#### 3.1 Presentation of Pre- and Post-Test Results for Study Groups

Table 1. Differences Between Pre- and Post-Test Results for the Control and Experimental Groups

| Group        | Variables                | Unit  | Pre-Test Mean (X <sup>-</sup> ) | Pre-Test SD (SD) | Post-Test Mean (X <sup>-</sup> ) | Post-Test SD (SD) | Calculated t-value | Sig (p-value) | Statistical Significance  |
|--------------|--------------------------|-------|---------------------------------|------------------|----------------------------------|-------------------|--------------------|---------------|---------------------------|
| Control      | Psychological Flow       | Score | 118.576                         | 6.263            | 130.238                          | 3.858             | 5.018              | 0.000         | Statistically Significant |
|              | Volleyball Setting Skill | Score | 9.223                           | 2.108            | 12.849                           | 1.753             | 3.974              | 0.000         | Statistically Significant |
| Experimental | Psychological Flow       | Score | 119.045                         | 6.447            | 145.478                          | 2.056             | 9.855              | 0.000         | Statistically Significant |
|              | Volleyball Setting Skill | Score | 9.418                           | 2.352            | 15.013                           | 1.315             | 6.152              | 0.000         | Statistically Significant |

Table 1 demonstrates that the significance values (\$p\$-values) of the paired-samples \$t\$-test were less than the alpha level of 0.05. This indicates statistically significant differences between pre- and post-test results in psychological flow and the volleyball setting skill for both groups, favoring the post-test results.

To determine between-group superiority, the post-test results were compared as shown in Table 2 below:

Table 2. Differences Between the Control and Experimental Groups in Post-Tests

| Variables                | Unit of Measurement | Control Group Mean (X <sup>-</sup> ) | Control Group SD (SD) | Experimental Group Mean (X <sup>-</sup> ) | Experimental Group SD (SD) | Calculated t-value | Sig (p-value) | Statistical Significance  |
|--------------------------|---------------------|--------------------------------------|-----------------------|-------------------------------------------|----------------------------|--------------------|---------------|---------------------------|
| Psychological Flow       | Score               | 130.238                              | 3.858                 | 145.478                                   | 2.056                      | 8.178              | 0.000         | Statistically Significant |
| Volleyball Setting Skill | Score               | 12.849                               | 1.753                 | 15.013                                    | 1.315                      | 4.952              | 0.000         | Statistically Significant |

Table 2 shows that the significance values (\$p\$-values) of the independent-samples \$t\$-test were less than 0.05, demonstrating statistically significant differences between the control and experimental groups in post-test measures (psychological flow and volleyball setting skill) favoring the experimental group.

#### 3.2 Discussion of Results

The findings obtained by the researcher revealed post-test improvements in both the control and experimental groups. The researcher attributes this to the fact that the experimental group underwent an instructional program designed according to the





cooperative style, which influenced student learning, whereas the control group was instructed via the command style designed by a coach experienced in the specialization. Any instructional program, when properly structured according to learners' capabilities and under instructor supervision, produces positive outcomes. In this regard, Qasim Lazam (2005), citing Thorndike, notes that practicing activities under instructor supervision when learning a specific skill yields positive outcomes and noticeable progress in physical and technical abilities.

The researcher further considers that the cooperative approach improved learning outcomes in the experimental group due to intra-group collaboration and healthy competition, which elevated learner motivation toward practice. This aligns with Nahida (2011), who confirmed that multiple styles exist to stimulate learner motivation toward an athletic activity to acquire its skills; among these is cooperative learning, which facilitates learning, clarifies instructional objectives, and seeks skill development.

Additionally, the program implemented through this style—constructed upon rigorous scientific foundations—advanced skill proficiency to the desired standard. Ali Hussein Yousef (2019) emphasizes that an instructional program inevitably fosters performance development and achievement, particularly when built upon scientific principles that organize the learning process, program appropriate methodologies suited to learner capabilities with gradual difficulty progression, account for individual differences, and utilize effective instructional media.

The researcher also believes that selecting diverse methods oriented toward achieving educational goals through close interactive practice among learners, task simplification, skill segmentation, and peer reliance provides a supportive element that plays a major role in generating a desire to learn and achieving target outcomes. Al-Heela notes that expanding opportunities for skill execution and increasing dedicated developmental exercises enhance performance. Furthermore, Dhafer Hashem (2002) states that learning progression is a natural phenomenon achieved when the instructor adheres to objective scientific principles to meet instructional unit objectives through explanation, demonstration, and reinforcement of correct execution until mastery is established, alongside continuous feedback that enhances motivated and eager learning. Moreover, the researcher notes that the cooperative setting provided an environment distinct from conventional instructional units, fostering peer collaboration and positive rivalry within small groups or between partners. This provided greater motivation for learning. Kadhem Abd (2019) points out that diversifying activities within an instructional unit provides realism in learning and addresses individual differences among classroom learners when an instructor adopts multiple styles aligned with student aptitudes and capabilities, rather than relying on a single uniform approach that may induce boredom and diminish motivation.

The researcher considers that the cooperative method placed students at the core of the educational process, granting them freedom to express opinions and ideas without hesitation. It incorporated activities stimulating active mutual participation and opportunities for shared cognitive processing, thereby enhancing self-confidence. This aligns with previous studies on building self-confidence, including a 2022 study showing that the trial-and-error instructional method helped elevate self-confidence and improve offensive volleyball skill acquisition.





#### 4. Conclusion and Recommendations

##### Conclusions

- Instructional units based on the cooperative learning style play a significant role in developing psychological flow among specialized sports school players.
- Instructional units based on the cooperative learning style play a significant role in acquiring the volleyball setting skill among specialized sports school players.
- The cooperative style contributed to enhancing psychological flow, which was reflected positively in heightened engagement, excitement, and confidence among specialized sports school players, thereby increasing the rate of learning the volleyball setting skill.
- The experimental group demonstrated superiority over the control group across the investigated research variables.

##### Recommendations

- Educational and coaching practitioners should incorporate the cooperative learning style into instructional curricula due to its significant role in fostering psychological flow among specialized sports school players.
- Educational and coaching practitioners should integrate cooperative learning into curricula given its vital role in teaching the volleyball setting skill to specialized sports school athletes.
- Conduct further research investigating the application of the cooperative learning style to other volleyball technical skills.
- Conduct further studies examining the application of the cooperative learning style in other sports disciplines beyond volleyball.

##### References

- Abdul-Razzaq, Z. L. (2023). *The effect of a group counseling program on developing psychological adjustment and selected offensive and defensive volleyball skills among youth players* [Master's thesis, College of Physical Education and Sports Sciences – University of Al-Muthanna].
- Ahmed, D. M. E. D., & Alaa, F. (2023). The effect of Color-Symbol-Image strategy on psychological flow and learning high and low dribbling skills in basketball for students. *Journal of Studies and Research in Physical Education*, 33(1), 107–126. <https://doi.org/10.55998/jsrse.v33i1.414>
- Al-Dulaimi, N. A. Z. (2009). *Methods in motor learning*. Dar Al-Kutub Al-Ilmiyah.
- Hashem, D. (2002). *The contextual interference training method and its effect on learning and development through spatial organizational tests of the tennis learning environment* [Doctoral dissertation, College of Physical Education – University of Baghdad].
- Hussein, Y. M. A. (2021). The effect of using exercises according to cooperative strategies (Teams-Games-Tournaments and Learning Together) in learning some basic skills in volleyball. *Journal of Studies and Research in Physical Education*, 29(4), 301–312. <https://jsrse.edu.iq/index.php/home/article/view/231>
- Kadhim, A. Q. M. A. (2019). The effect of cooperative learning strategy (intra-group competition and peers) in teaching some wrestling holds to students. *Journal of Studies and Research in Physical Education*, 29(3), 223–233. <https://jsrse.edu.iq/index.php/home/article/view/254>
- Saber, Q. L. (2005). *Topics in motor learning*. College of Physical Education – University of Baghdad.
- Saleh, N. A. (2024). Psychological flow and its relationship to triple jump performance in athletics. *Journal of Sports Science*, 16(62). University of Diyala.

