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The effect of the practical demonstration strategy on the skills of the forward roll and headstand in artistic gymnastics for students

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Abstract
The importance of the research lies in the use of the practical demonstration strategy in teaching some skills, such as the front roll and headstand, as it is an effective strategy in improving the level of skill performance among students. It also enhances their interaction and understanding of skills in a deeper and more distinctive way. The aim of the research was to identify the effect of the practical demonstration strategy on the skills of the front roll and headstand in artistic gymnastics for students. The researcher used the experimental research method as it is compatible with solving the problem to be researched. He used the design of two equivalent groups: experimental and control. The research community represented second-year students in the College of Physical Education and Sports Sciences/University of Wasit for the academic year (2024-2025), numbering (110) students distributed among (5) classes, each consisting of (22) students, namely (A, B, C, D, E). Class (A) was selected by lottery as an experimental group, and Class (C) as a control group. The researcher concluded that the practical demonstration strategy led to the development of some of the rolling skills. Forward roll and headstand among second-year students.

Keywords: Demonstration strategy, forward roll, headstand

1. 1. Introduction
The world has recently witnessed remarkable development in various fields, especially in the sports domain, where sports have become one of the fundamental axes in building individuals and developing their diverse capabilities. Gymnastics is considered one of the sports that has received wide attention due to its unique artistic and motor nature, combining creativity and discipline, and contributing to enhancing motor perception and developing neuromuscular coordination in individuals, in addition to enabling them to control their bodies and express movement accurately and confidently.
Gymnastics is characterized by the diversity of its skills and aesthetics, which makes it a sport loved by all. It also serves as an important educational entry point for acquiring basic skills such as the tucked forward roll and headstand, both of which require a good understanding of the sequence of movements and precise balance in performance.
In light of educational and pedagogical development, many modern teaching methods and strategies have emerged that aim to enhance students' understanding of motor and skill content. Among the most prominent of these methods is the "Practical Demonstration Strategy," which relies on presenting concepts and skills through direct practical demonstration or by using illustrative educational media. This contributes to facilitating the learning process, especially in skills that require precise visual and motor perception, as is the case in gymnastics skills.
Therefore, integrating the practical demonstration strategy into teaching skills such as the tucked forward roll and headstand is considered an effective method for improving the level of skill performance among students, and it also enhances their interaction and understanding of skills in a deeper and more distinctive way. Herein lies the importance of the research.

1.2 Research Problem
Gymnastics floor skills are among the important fundamentals in gymnastics, as they include a set of motor and artistic skills that develop body control, balance, and accuracy in

performance. These skills form a necessary foundation for acquiring more advanced skills later on. Among them, the tucked forward roll and headstand stand out as essential skills that students must master, given their significant role in building motor coordination, body awareness, and proper movement sequencing.

Through the researcher's practical and academic experience as a gymnastics professor, it was observed that most of the teaching methods currently used in teaching these skills are rigid and rely on traditional approaches that lack diversity and interaction. This leads to a weak comprehension of skills and difficulty in mastering them among students, and it reduces their motivation towards learning and development.

Based on the importance of employing modern teaching strategies that align with the nature of these skills, the researcher decided to study this problem by adopting the practical demonstration strategy, given its effective role in facilitating the delivery of motor skills through the integration of practical demonstration and illustrative media, which contributes to improving students' performance and overcoming difficulties associated with traditional presentation methods.

1.3 Research Objectives

- To identify the effect of the practical demonstration strategy on the skills of the tucked forward roll and headstand in artistic gymnastics for students.
- To identify the differences in post-tests between the experimental and control groups in the skills of the tucked forward roll and headstand in artistic gymnastics for students.

1.4 Research Hypotheses

- The practical demonstration strategy has an effect on the skills of the tucked forward roll and headstand in artistic gymnastics for students.
- There are differences in the effect between the experimental and control groups in the skills of the tucked forward roll and headstand in artistic gymnastics for students in the post-tests.

1.5 Research Scope

- **1.5.1 Human Scope:** Second-year students / College of Physical Education and Sports Sciences.
- **1.5.2 Time Scope:** From 3/1/2025 to 11/4/2025.
- **1.5.3 Spatial Scope:** Sports Hall / College of Physical Education and Sports Sciences.

1.6. Definition of Terms

Practical Demonstration Strategy: An activity presented or offered by the teacher or learner to the class through the use of various educational aids [Maroun, 2008, 181] [4].

Or it is: Re-enacting a series of ordered or planned events to depict a specific phenomenon [Abu Sari ', 2008, 178] [1].

2. Methodology

2.1. Research Method

The researcher used the experimental research method as it is suitable for solving the problem to be researched and used the experimental design with two equivalent groups: experimental and control.

2.2. Research Population and Sample

The research population was identified as second-year students in the College of Physical Education and Sports Sciences/University of Wasit for the academic year (2024-2025), numbering (110) students distributed among (5) sections, each consisting of (22) students, namely (A, B, C, D, E). By lottery, section (A) was chosen as an experimental group and section (C) as a control group. The exploratory sample was randomly selected by the researcher from section (D) and consisted of (10) students, thus the sample size reached (49.1%) of the total research population.

To ensure that the results are moderately distributed among the research sample individuals, the researcher sought to confirm the homogeneity among them using the skewness coefficient to control all variables that might affect performance (height, mass, chronological age). The skewness coefficient values were (-0.655), (0.743), and (-0.651) respectively. Since all values were confined between (±1), this indicates the homogeneity of the research sample individuals. After dividing the sample into two equivalent groups (experimental and control), the researcher verified the equivalence between them to ensure starting from the same baseline for both groups, as shown in Table (1).

Table 1: Shows the equivalence of the sample in the research variables under study

No.	Variables	Unit of Measurement	Experimental Group	Control Group	Calculated T-value	Confidence Level	Significance Type		
			Mean ($\bar{X}$)	SD (σ)	Mean ($\bar{X}$)	SD (σ)			
1	Tucked Forward Roll	Score	3.045	0.785	2.909	0.921	0.528	0.6	Not
2	Headstand		3.210	0.867	3.323	0.892	0.692	0.523	Significant

(*) Significant at confidence level (0.05) if error level ≤ (0.05).

2.3.1 Data Collection Tools

- Scientific observation.
- Objective tests.
- World Wide Web (Internet).
- Arabic and foreign sources.

2.3.2 Devices Used in the Research

- Stopwatch (2) made in Japan.
- Scale for measuring student mass, Sartorius brand, German origin, (2).
- Laptop (Dell brand, Korean origin).

2.3.3 Equipment Used in the Research

- Measuring tape.
- Gymnastics mat.

2.4 Field Research Procedures

2.4.1 Defining Research Variables

The two research variables were defined based on the researcher's personal experience as a specialist in teaching artistic gymnastics, which are (tucked forward roll, headstand).

2.4.2. Evaluating Artistic Performance

The researcher video-recorded the performance of the two skills (pre and post) for both experimental and control groups, then presented them to the evaluators via CDs along with a special evaluation form (approved by the Iraqi Federation). The skills were evaluated by three (judges), and the sum of the three scores was divided by three to get the final score for each skill, noting that the final score for the form is between (0-10).

2.4.3. Exploratory Experiment

The researcher conducted the exploratory experiment on the exploratory sample of (10) students in the sports hall of the College of Physical Education and Sports Sciences/University of Wasit, on Sunday, January 5, 2025. "This experiment serves as field training for the researcher to identify and overcome shortcomings in the main experiment" [Jabri, 2024, p.75]. It aimed to:

- Determine the time required for the tests (performance evaluation).
- Confirm the efficiency of the assistant team and define the duties of each individual.
- Determine the validity of the tools and equipment used in the research.
- Identify difficulties and shortcomings that may accompany the performance of tests.
- Assess the suitability of the practical demonstration strategy for the research sample's level.

2.4.4 Pre-tests: The researcher conducted the pre-tests (pre-assessment) for both experimental and control research groups at 10:00 AM on Tuesday, January 7, 2025, in the sports hall of the College of Physical Education and Sports Sciences/University of Wasit. The conditions related to the tests, in terms of place, time, and tools used in the research, were standardized to achieve similar conditions as much as possible in the post-tests.

2.4.5 Main Experiment (Application of the Practical Demonstration Strategy): The main experiment began on Sunday, January 12, 2025, at 10:30 AM and ended on Wednesday, February 26, 2025. In this phase, "the practical demonstration strategy was applied to the experimental group individuals in the main section. The researcher considered the aspects emphasized by this strategy, starting from the method of presentation and clarification, using verbal explanation with direct practical performance, then presenting the skills gradually (step-by-step), and utilizing video or slow-motion demonstrations to explain technical points. Then, observing students' performance accurately and providing immediate feedback to encourage self and group evaluation to motivate learning and urge interaction and participation, and opening discussion after each practical demonstration and involving students in constructively evaluating their peers' performance to create an encouraging, non-sarcastic environment. As for the control group, their educational units followed the traditional method. The educational units continued for (7) weeks, with two units per week, totaling (14) educational units."

2.4.6 Post-tests

The researcher conducted the post-tests (post-assessment) for both research groups on Sunday, March 2, 2025, and followed the same method used in the pre-tests. The researcher was keen to provide all similar conditions for the pre-tests and their requirements when conducting the post-tests in terms of time, place, and testing tools.

2.5 Statistical Methods

The statistical package (SPSS26) was used to extract the following laws:

- Arithmetic mean.
- Standard deviation.
- Median.
- Skewness coefficient.
- t-test for paired samples.
- t-test for independent samples.

3. Results

3.1 Presentation and Analysis of Pre and Post-test Results for Variables (Tucked Forward Roll, Headstand) for Both Research Groups:

3.1.1 Presentation and Analysis of Pre and Post-test Results for Variables (Tucked Forward Roll, Headstand) for the Experimental Group:

Table 2: Shows the results of pre and post-tests for the experimental group

Test	Unit of Measurement	Pre-test	Post-test	Calculated T-value	Sig.	Significance		
		Mean ($\bar{X}$)	SD (σ)	Mean ($\bar{X}$)	SD (σ)			
Tucked Forward Roll	Score	3.045	0.785	4.136	0.940	5.555	0.000	Significant
Headstand		3.210	0.867	4.988	0.764	5.343	0.000	

(*) Significant at confidence level (0.05) if error level ≤ (0.05).

3.1.2 Presentation and Analysis of Pre and Post-test Results for Variables (Tucked Forward Roll, Headstand) for the Control Group

Table 3: Shows the results of pre and post-tests for the control group

Test Name	Unit of Measurement	Pre-test	Post-test	Calculated T-value	Sig.	Significance		
		Mean ($\bar{X}$)	±SD (σ)	Mean ($\bar{X}$)	±SD (σ)			
Tucked Forward Roll	Score	2.909	0.921	3.545	0.962	5.137	0.000	Significant
Headstand		3.323	0.892	4.112	0.859	2.456	0.001	

(*) Significant at confidence level (0.05) if error level ≤ (0.05).

3.1.3 Presentation of Post-test Results for Both Experimental and Control Groups

Table 4: Shows the post-tests for both experimental and control groups

Test Name	Unit of Measurement	Experimental Group	Control Group	Calculated T-value	Sig.	Significance		
		Mean ($\bar{X}$)	±SD (σ)	Mean ($\bar{X}$)	±SD (σ)			
Tucked Forward Roll	Score	4.136	0.940	3.545	0.962	2.06	0.036	Significant
Headstand		4.988	0.867	4.112	0.859	2.29	0.024	

(*) Significant at confidence level (0.05) if error level ≤ (0.05).

3.2 Discussion of Results

After reviewing the results presented in Tables (2), (3), and (4), it becomes clear that there is a significant development for both groups (experimental and control) in (tucked forward roll, headstand), as all results were statistically significant. However, the experimental group showed a better level of development than the control group.

The researcher attributes the superiority of the experimental group over the control group to the use of the practical demonstration strategy. This strategy provides practical learning opportunities that help students observe the correct performance of the movement and its precise details visually and directly. Practical demonstrations enable students to link theoretical explanation with practical application, which facilitates their understanding of the stages of motor performance and the sequence of steps, thereby reducing common errors in execution. Faten Mahmoud indicates that this strategy makes the knowledge presented to students linked to application, which leads to faster comprehension and assimilation of information [Faten, 2018, 13]. This is entirely consistent with what was observed and statistically confirmed in the development of the tucked forward roll and headstand skills, because the direct link between theoretical explanation and practical demonstration helped learners understand the motor mechanics of each skill more deeply. When using practical demonstrations, the skill was no longer just verbal instructions that were difficult to visualize, but became a visible motor model that could be imitated and whose details could be understood, such as hand placement, weight distribution, and movement timing [Mohsen *et al.*, 2021] [5]. This integration between theoretical knowledge and practical application led to accelerating the learning process and significantly improving performance quality, especially in skills that require precision in balance and motor coordination, such as the tucked forward roll and headstand. This strategy also worked to increase students' motivation, as watching the correct performance live and realistically aroused their enthusiasm and desire to imitate the model and achieve the same level of mastery. Practical demonstrations enhance the feeling of confidence and ability to achieve, which drives learners to actively participate in the lesson and continuously strive to improve performance. This is what Abu Shuraykh [2008, 24] [1]. Indicated, that one of the most important purposes of the practical demonstration strategy is to stimulate students' motivation towards learning.

4.1 Conclusions

- The practical demonstration strategy led to the development of some of the tucked forward roll and headstand skills among second-year students.
- The practical demonstration strategy achieved superiority over the method used by the instructor in developing the tucked forward roll and headstand skills among second-year students.

4.2. Recommendations

- The necessity of using the practical demonstration strategy by instructors to develop some ground movement skills in artistic gymnastics for students, especially the tucked forward roll and headstand skills, because most educational units lack this type of strategy.
- Conducting similar research and studies using the practical demonstration strategy for different age groups and both genders, and for other sports activities.

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